An Address
ON
THE TREATMENT OF TUBERCULOSIS IN SANATORIA.

Delivered before the State and Municipal Section of the British Congress on Tuberculosis on July 26th, 1901,

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MR. CHAIRMAN, LADIES, AND GENTLEMEN,—I have undertaken to direct your attention, in the few words I am permitted to address to you, to one narrow scroll of that vast and voluminous subject which is now being discussed in four sections and in many phases by the distinguished men assembled in this metropolis.

It is to the subject of sanatoria, or special hospitals for the cure of tuberculosis, and more particularly of pulmonary consumption, that I have to bring under your notice, and in saying that I use the word "cure" advisedly. I am aware that pessimistic views as to the curability of consumption are still entertained in some quarters. The dictum of Laënnec echoing the current opinion of his time, "que l'affection tuberculeuse est, comme les affections cancéreuses, absolument incurable," coming from so venerable an authority, has cast a long, sombre, and perhaps somewhat blighting, shadow over the therapeutics of this disease, and quite recently Dr. C. Theodore Williams, whose opinions on such matters are entitled to respect, has repudiated the word "cure" and strongly urged that we should not commit ourselves to anything beyond an arrest of pulmonary tuberculosis. Now, I venture to differ from Dr. Theodore Williams on this point, and the difference between us is no mere logomachy but an essential one, calculated to affect the usefulness of sanatoria, for if all that these institutions can offer is an arrest—that is to say, an interruption or stoppage, more or less prolonged, in the course of an incurable disease—they will not commend themselves to public confidence and support as they would do if they could hold out hopes of a complete and permanent restoration to health.

No doubt every severe disease by which the human body is visited leaves some residual traces behind it—some scars on the constitution; but for practical purposes these do not count unless they are kept in perpetual remembrance by the suffering they inflict or the disability they involve. It is the rarest occurrence to find at a necropsy any human body in which no pathological changes are visible beyond those incidental to the disease that killed or to senile decay. In almost every cadaver there are what might be called the fossil remains of palæozoic disease, but because we observe in the ileum the obliteration of some of Peyer's patches we do not say that an attack of enteric fever which happened perhaps 40 years ago was arrested and not cured; because we find on the breast a cicatrix marking the site of a carcinomatous tumour removed 10 years previously we do not maintain the incurability of cancer. Then why, I would ask, should the presence of a calcareous nodule or fibrotic patch at the apex of a lung justify us in arguing that phthisis, once planted, is ineradicable? The assumption that the tubercle bacilli are lurking in such foci merely waiting the opportunity given by some deterioration of health or lowering disease to break forth again and to spread havoc around is gratuitous, for when in such cases phthisis does again supervene it is just as likely to be due to fresh infection as to any stirring up of slumbering embers. Even when caseous masses in which tubercle bacilli can be detected exist in the lung, so long as these remain completely encapsulated and quiescent, and do not interfere with comfort or working power, their presence and certain problematical dangers that may attend them need not debar us from saying that the morbid process in which they originated was cured, any more than the persistence of some nodules round a joint prevents us from predicating cure after an attack of rheumatic fever. The fact is, that obsolete tubercle exists in the lungs of a large number of persons who are unconscious of its existence, who carry it about with them for years, and who ultimately die from other diseases. Dr. J. Kingston Fowler found that in 2400 post-mortem examinations at the Middlesex Hospital quiescent and extinct tuberculous lesions existed in 9 per cent., while Loomis has recorded a similar state of matters in 71 out of 763 necropsies in New York. Vibert, in Paris, has reported that out of 131 persons who met with violent deaths and were examined at the Morgue 17 had healed tuberculous lesions in their lungs. Within the last month Dr. Frederick P. Hearder has carefully analysed for me the last 500 consecutive post-mortem examinations of persons from 15 years of age upwards dying in my old hospital, the West Riding Asylum, Wakefield, with the result that in 170 of these—that is to say, in 39·2 per cent.—tuberculous lesions existed. In 93 cases (or 18·6 per cent.) there was active tubercle, and in 103 cases (or 20·6 per cent.) there was obsolete tubercle, appearing as contraction and cicatrisation in 24 cases (or 4·8 per cent.), as fibrosis in 35 cases (or 7·0 per cent.), as calcification in 23 cases (or 4·6 per cent.), and as encapsulation in 21 cases (or 4·2 per cent.). These figures are significant as showing the tremendous prevalence of tuberculosis amongst the insane in asylums and as showing also how tubercle once rendered obsolete may continue so even under conditions most favourable to its renewed activity. In 103 persons in whom pulmonary tuberculosis had become obsolete before their admission to the asylum or during their residence there it remained in that state in spite of the impaired nutrition and depressing conditions almost invariably associated with mental disease, and in spite of association in the wards of a large institution with other patients in whom that malady was in its active stages. The cure in these cases, such as it was, held good to the last even when it might have been expected to have broken down.

No doubt in a large number of cases of consumption, especially in its more advanced stages, a condition that can only be correctly described as an "arrest" is arrived at. Pyrexia and the more acute symptoms subside, bacilli are no longer found in the sputum, and there is improvement in general health and diminution of the local physical signs, but wheezing, breathlessness, occasional cough, loss of strength, and chronic invalidism remain, with a constant liability to relapse. In such cases the disease is smouldering but not extinct. But in other cases—a still larger and, we trust, an ever-increasing number—what is practically a favourable termination of the disease is reached. The local lesions cease to give trouble, the constitutional symptoms vanish, energy and bread-earning capacity are restored, a ripe old age is attained with scarcely a reminiscence of the phthisical past, or a long interval of good health is enjoyed before the disease again declares itself. In the two cases which Dr. Theodore Williams in his recent paper adduces to illustrate the inveteracy and incurability of phthisis complete immunity from symptoms was enjoyed in one for 19 years and in the other for 11 years. Surely under such circumstances it is a misnomer to describe the long interval of health as an arrest—or as anything but a cure of the disease. Koch has cited cases in which tuberculous foci of large size have subsequently contracted and cicatrised and permanently healed, and in his judgment the curability of pulmonary tuberculosis in its earlier stages is an indisputable fact. Even a whole lung may be destroyed and shrivelled and the other lung preserved in its integrity. But it is in cases less pronounced, where slight infiltration at the apex in young persons from 15 years to 30 years of age undergoes resolution or caseation or fibrosis, that what may be called genuine cures are obtained. In them often enough all unpleasant symptoms disappear, and they remain unmolested by the bacilli for the rest of their days.

The pathological evidence of the curability of consumption is convincing and so is the clinical. We see cases in what used to be called the pre-tuberculous stage, but which we now know by the presence of bacilli to be incipient tuberculosis, in which complete resolution with disappearance of local and constitutional symptoms takes place. To watch the progress of a case that has advanced beyond this stage is to witness a conflict between the bacillary and the corporeal powers with the advantage now to one and now to the other. In the long-drawn-out struggle, so stubborn is the resistance of the tissues to the invader that our belief is almost revived in the exploded *vis medicatrix naturæ* and we see that, even unaided, the assailed lung is largely capable of protecting itself. The observation of a large group of cases brings home to us the truth that consumption is susceptible of spontaneous cure and

powerfully suggests that in many instances its progress might be stayed and its ravages repaired by some slight reinforcement of the bodily powers. It is to supply this reinforcement that sanatoria have been established. Consumption, as we now know, does undergo spontaneous cure and there can be no doubt that it has from time to time been cured under, and perhaps sometimes notwithstanding, one and all of the infinitely varied kinds of treatment to which it has been submitted. It is impossible to question the diagnosis or judgment of such a clinical expert and faithful historian as Stokes or Niemeyer when he tells us that he has repeatedly seen complete recovery from consumption take place in patients confined to bed, cooped up in hot rooms, kept on low diet and treated by blisters, setons, and cough mixtures. I am not going to trace the several steps in the evolution of a more rational method of treatment that has landed us to-day in measures exactly the opposite of these I have enumerated. That would be an interesting, but a tedious, task for which I have not time, and I will only say that our present system of treatment, that which is organised in the sanatorium, rests on a scientific basis that is irrefragable and is already abundantly justified by its fruits.

I do not claim finality for that treatment. The time may come—pray Heaven it may!—when some sovereign and speedy remedy for tuberculosis will be put in our hands. The resources of pharmacology are not exhausted. Bacteriological science is advancing at automobile pace and any day an agent may be discovered—an improved tuberculin, an antitoxin, a serum, or a germicide—that will seek out and kill the bacilli in their lairs or render them innocuous. Even now the intravenous injection of formalin, as conducted by Dr. Robert Maguire, seems to have a powerful influence in establishing pulmonary asepsis. But pending the authoritative promulgation of some effectual antidote that will operate directly on the bacilli and their products our best hopes are centred in measures calculated to increase the corporeal resistance to their inroads. These measures, which may be summed up under fresh air, feeding, rest, and medical regulation—these measures alone, we now believe, skilfully employed, are capable of effecting a cure in a large proportion of cases of consumption when taken in time, and even should some prompt and infallible remedy for tuberculosis be discovered they will still continue to be of value in promoting its action and in removing the debility engendered by the malady it has extirpated. It cannot be too loudly proclaimed, too widely known, that sanatorium treatment has already largely extended the curability of consumption and that in suitable cases it holds out hopes of recovery and of prolongation of life that could not have been entertained before its introduction. It is as yet too soon to form any exact numerical estimate of its results. Only approximative computations can be made, and these are subject to correction by the subsequent history of cases and to discount for the too sanguine construction of some of those making them. In Germany, where the open-air treatment has most copiously effloresced—though I am glad to remember that it budded first in England—statistics are more reliable than those available in this country, because they extend over a longer period. The experience of 11 years at Görbersdorf, in 1890 patients, gave in the first stage of the disease 27·8 per cent. cured, 31 per cent. nearly cured, and 58·8 per cent. not improved, and Mr. Rube has told us that of 8200 insured men and women treated in the State Sanatoria in Germany 71 per cent. were discharged fit for work, a criterion, not of cure in all cases, but of substantial improvement. Dr. W. Rowland Thurnam tells me that of 78 patients treated at Nordrach-upon-Mendip in the year 1899 24 per cent. left the sanatorium absolutely cured, being able to return to their ordinary walks of life and with no signs of phthisis remaining, stethoscopic, thermometric, or microscopic; while 24 per cent. left relatively cured, not completely recovered, but still equal to a return to work and to a fairly active life. Amelioration short of relative cure was secured in 37 per cent., and in 18 per cent. there was no improvement or death. The absolutely cured cases have all remained perfectly well up to the present date, the relatively cured have suffered no relapses, and some report themselves as better and quite well, while among the ameliorated cases there have been deaths, relapses, and steady improvement. At the sanatorium at Mundesley there were 66 patients up to the end of last year, of whom 21 were discharged recovered and 31 partially recovered, leaving 14 under treatment or unimproved. A return which Dr. F. W. Burton-Fanning has prepared for this Congress dealing with 716 patients treated in 13 sanatoria gives 37·4 per cent. of recovery or arrest and 40·1 per cent. of amelioration, and Professor Koch has told us that if patients be carefully selected and treatment be sufficiently prolonged it will be possible in sanatoria to cure 50 per cent. of cases or perhaps more. Without attaching undue weight to sanatorial statistics published up to the present date this, at any rate, is clear—that these establishments already give results superior to those of the most successful health resorts like Davos, and it may be confidently predicted that as time goes on, and as their merits become known, so that an increased number of patients in the initial and most curable stage of the disease resort to them for treatment, and as the general adoption of those preventive measures which it is the main object of this Congress to recommend leads to a general reduction in the virulence of the disease, their returns will become more and more satisfactory. In their early days they have had to grapple with a large proportion of advanced and hopeless cases, but as a just knowledge of the nature of the disease and its amenability to treatment is disseminated there will be less contributory negligence on the part of sufferers and their friends and more eagerness in seeking relief.

Seeing that the sanatorium treatment is accepted by the medical profession as, upon the whole, the best treatment of consumption available at present—and the unanimity of the profession on this point is remarkable—seeing that it saves many lives, that it prolongs the days and alleviates the sufferings of those whom it cannot altogether rescue; and seeing that it has the collateral advantage of aiding in the work of prevention by isolating a number of active fountains of infection that but for it would be scattering the seeds of the disease throughout the community,—it behoves us to bring that treatment within the reach of all persons affected by consumption who are willing to avail themselves of it. The sick and the sound alike will benefit by its adoption, the public burdens will ultimately be lightened by its beneficial operation, and it is therefore a public duty to provide it for those who cannot provide it for themselves. This public duty is now recognised in almost all civilised countries. In France, Italy, Russia, Norway, Sweden, Denmark, Switzerland, Austria, Hungary, Poland, Spain, Portugal, and in 11 of the States of the American Republic sanatorial hospitals have been provided, and in most of these countries the Government have seen fit to assist in their erection and maintenance and in some cases to assume the entire responsibility for these. In Germany, which leads the van in this good work, upwards of 100 sanatoria with above 5000 beds have already been called into existence for the treatment of consumptives of the working class, and as the funds for these have been largely contributed by the State Insurance Companies we may accept the fact that additional sanatoria are to be forthwith provided as conclusive evidence that from a financial point of view these hospitals have not been disappointing. It is actuarially established that the cure of consumption on the large scale in the working class, costly though it may be, is, in the long run, cheaper than the expenditure on sick pay and death duties and support of dependants when it is left to run its unrestrained course. The exact mode in which sanatorial accommodation is to be provided must, of course, vary in every different country in accordance with its administrative system, its economical conditions, and the habits of its people; and we hope to hear from foreign representatives some interesting particulars as to the methods adopted in their respective localities, but my duty is simply to introduce the question of sanatorial treatment in England and to prepare the way for Mr. E. W. Brabrook, Sir John Burdon Sanderson, and others who, with abundant knowledge and practical experience, will deal with the topic in several aspects and in greater detail.

Now England has been accused of having lagged behind in this matter, and the remarks which have been made almost suggest that she has been callously indifferent to the sufferings and deprivations of her consumptive poor. But that accusation is not more just than those levelled against her for her inhumanity in war. It is not mere British arrogance, but sober truth, to declare that there is no country in the world where more ample and generous provision has been made for the sick and afflicted of all classes than in England. Consumptives have not been neglected. Our workhouse infirmaries, our sick asylums—some of them quite equal to the best continental hospitals—have always

been open to them; our general hospitals, as Dr. P. H. Pye-Smith has pointed out, have not refused them admission; and admirably appointed special hospitals, like those at Brompton, at Victoria Park, and at Ventnor, have been provided by the charitable for their accommodation. With characteristic caution England has not rushed into the new sanatorial movement until thoroughly satisfied as to its feasibility, but now that she is convinced on that point there will be no slackness or delay in her participation in it. The progress made in the work of the prevention or cure of consumption since our National Association for that purpose was formed, and since the King gave it his countenance less than two years ago, has been phenomenal, and at the present moment there is scarcely a county of England in which, either by private enterprise or public effort, a sanatorium is not being built or is not in contemplation. The really urgent work before us at this juncture is to regulate and organise local activity, to determine the requirements of the country as a whole and of its several districts, to prevent overlapping and extravagant outlay, and to supply the best advice as to construction and management. And in this work the deliberations of a congress such as ours may afford material assistance. My contribution to these deliberations must be a small one, but I would briefly indicate what it seems to me is wanted in connexion with sanatorial treatment in this country.

In making provision for that treatment we have three classes of consumptive persons to bear in mind: (1) the affluent, (2) the competent, and (3) the indigent.

As regards the first of these, the affluent, they may, I think, be safely left under the guidance of the skilled medical advice which they can command to provide what is necessary for themselves. Consumption is always prevalent in the inverse ratio of rateable value, and the problem of dealing with it amongst the rich is therefore a comparatively simple one. For them I am not prepared to maintain that treatment in a special sanatorium is always essential. I am not blind to the advantages of the discipline maintained in a large establishment conducted with a sole eye to salubrity, or of complete subjection to the will of a medical autocrat with a firm faith in his system and the power of inspiring confidence. But such medical autocrats, indomitable and yet genial, are not everywhere to be found, and sanatoria have their drawbacks as well as their advantages. On a highly bred and highly strung person involvement in an agglomeration of disease may have a depressing effect. For a majority even of the affluent class of consumptives the sanatorium with its simple ways and benevolent tyranny is, I believe, the best place, but I cannot contend that for some of them a private house may not, by architectural device, medical direction, and skilled nursing, be converted into a perfect sanatorium. Nay, I would go further and say that for the affluent the sanatorium is not the kind of treatment to be invariably recommended. It cannot, I think, always supersede residence at high altitudes, in Egypt, on the veldt, or even sea voyages, and those who have every method of treatment available without stint must be guided by the physician who will weigh the individual traits and requirements of each case. I am inclined to believe that the sanatorial provision for the affluent in this country is already nearly sufficient. I have seen a list of 22 of these establishments already in operation in England and Scotland, and more are promised, and the law of supply and demand may be trusted ultimately to determine their number and characteristics. But the law of supply and demand—being one of the mills of God—"grinds slowly," if it "grinds exceeding small," and in the meantime, until selection has determined the survival of the fittest, a jealous medical eye should be kept on these establishments. The name "sanatorium" is unprotected, open air is a *fera natura* that he who will may capture, and the danger is that incompetent persons without scientific knowledge or practical skill, or unscrupulous persons with a dingy dwelling, a meagre curtilage, and a rickety summer-house designated anew "Nordrach-cum-Wolverhampton"—the Black Country being a substitute for the Black Forest—or "Falkenstein in Finsbury," may draw into their nets unwary patients and discredit the system. It is incumbent on members of the medical profession in choosing a sanatorium for their affluent patients to be well assured of the character and qualifications of its medical head. Some existing sanatoria are admirable; in others there is room for improvement in internal arrangements and domestic management. A rough-and-ready system in the service of food and household economy is no integral part of the treatment, which is not incompatible with daintiness and refinement. To call high-class men who have identified themselves with such establishments "hotel-keepers," as has been done, is a gratuitous insult and a grave injustice. They are hospital physicians giving their whole time to their hospital work and therefore properly remunerated directly and they are conferring valuable services on the public. For my part I think that it is much more desirable that sanatoria for the affluent classes should remain entirely in the hands of medical men than that they should be exploited by limited companies or by lay speculators.

In turning to the "competent" class of consumptives—as I have called those drawn from that large section of our people whose means suffice to furnish the necessaries and conveniences of life without superfluity—we reach the point where eleemosynary aid becomes desirable. As long as health is preserved these persons have ample means of subsistence, and during a brief illness they can meet all requisite charges, but when they are prostrated by a protracted disease that diminishes or cuts off their income and demands a costly treatment their resources are inadequate. Their state is really a pitiable one, for their independence of spirit is not lost in their undeserved poverty and often enough they would rather die than apply for relief. Many of them can contribute some part of the cost of their maintenance and treatment while they are ill, and many of them, if restored to health, would gladly, when again earning money, repay to any institution the expenses of their illness. It is for them—for governesses, curates, clerks, young barristers and medical men and civil servants, and for the wives and daughters of professional men, of farmers, and small tradesmen—that sanatoria should be provided by the subscriptions of the charitable or by the assistance of well-disposed capitalists who are willing to do a good work and receive a very small return for their money. And what charity is ready to do for such sufferers is illustrated by the noble gift of £100,000 to the Mount Vernon Sanatorium at Hampstead, announced this morning. In the sanatoria thus procured a certain number of patients would, if the institutions were to be useful, have to be received gratuitously or on the terms of deferred payment should recovery take place—a payment which should, of course, be always voluntary and never enforced. A majority of the patients, however, would pay for their own board in part or in whole; and my belief, founded on my experience of registered lunatic hospitals, is that, when once built and furnished and fairly started, these sanatoria would, under skilful management, become self-supporting. It is the initial expenses that have to be met. The cost of maintenance when they are launched need not, in sanatoria of 60 beds and upwards, exceed £1 10*s.* or £2 a week—a sum which, considering that the duration of the treatment will be on the average six months, a very large proportion of the competent class should be able to pay out of their own pockets. At Pinewood Sanatorium, which has been built out of funds advanced by Mr. Rube and Mr. Lionel Phillips at 2½ per cent. interest, and where we shall have rent at that rate on an outlay of £30,000 to pay, we propose to open with a charge of three guineas a week, which we ultimately hope to reduce considerably. In some of the county sanatoria that are now in view, thanks to local efforts, I have no doubt that treatment on a liberal scale will be put within the reach of those who cannot afford more than £1 5*s.* or £1 10*s.* per week, and as several counties which are leading the van in this matter have already, even in these pinching times of war, obtained by public subscription the amount required for their sanatorial needs, I am sanguine that their example and the encouraging reports they will soon be able to issue will stimulate other counties to do likewise, and that voluntary contributions and self-aid will do all that is necessary for the competent class of consumptives in this country. As to the constitution and administration of these sanatoria I shall say nothing now but that they should be constructed in the simplest and most inexpensive style, and that their hospital character should be preserved by the appointment of a staff of consulting and visiting physicians. A resident medical officer must, of course, carry out treatment and superintend every detail of domestic economy, but the patients should have the benefit of the highest medical skill and experience that the district affords. Any medical body or corporation putting obstacles in the way of the acceptance of office in such sanatoria would be incurring a serious responsibility and would have to encounter a heavy reckoning with public opinion.

In the indigent class of consumptives is included the great

mass of cases of the disease in this country—all those occurring amongst artisans, workmen, labourers, soldiers, sailors, domestic servants, sempstresses, and shop-girls. The line between them and the class immediately above them socially is not clearly defined; for, of course, an enormous majority of them are competent in the sense that they are supporting themselves and those having claims on them while they are well, and that by virtue of their own frugality they are not wholly or immediately destitute in sickness. They are, however, indigent in the sense that they are all in need of help, of greater or less amount, during any prolonged suspension of work (when also those dependent on them must be maintained)—help which in consequence of their number and distribution must almost inevitably come from public funds. Private charity cannot cope with their necessities and the sanatoria by which that valuable commodity, their skill and labour, is to be preserved to the community when it is menaced by consumption must be paid for out of the public purse. The problem of providing these sanatoria for the indigent is a large one to commence with, but as their curative influence is exercised and as preventive measures come into full operation it will become smaller and easier. It is clear that these sanatoria for indigent consumptives must be distinct establishments and cannot properly be tacked on to any existing institutions. It is an infectious disease which they are to harbour and so they must be isolated; its treatment requires uncontaminated air and sunlight, and so they must stand apart in some county district away from centres of population. And as they must be isolated geographically so, I think, they should be isolated morally from other institutions with which there may be a tendency to associate them. They should be kept free from any taint of pauperism and have no point of contact with the Poor-law. I would suggest, therefore, that not district but county councils, acting singly or in combination, should be charged with the duty of erecting and governing them and that they should be designated "county sanatoria." In the metropolitan district, perhaps, the Metropolitan Asylums Board, that has so efficiently dealt with zymotic disease, might undertake this additional duty. In these county sanatoria (once built) the maintenance and treatment should not exceed 15*s.* a week per head, and that sum many of the indigent class could find for themselves throughout their limited treatment, while a still larger number could find a moiety of it. Then an arrangement might be made by which friendly societies and sick clubs would have the right to demand admission for their members who are consumptive and their treatment for a fixed period at the ordinary rate of maintenance, while collieries, manufactories, and works might by small weekly payments of those employed in them retain a call on a certain number of beds. The contributions of indigent consumptives would go far to maintain these county sanatoria and whatever was required beyond these contributions should be drawn from the county rate. The money thus expended would be profitably invested. The medically certified existence of pulmonary consumption should be the one all-sufficient qualification for admission to these sanatoria, and residence in them should be prolonged until the disease has been cured or bread-earning capacity restored, or until death in hopeless cases. A certain amount of internal classification would be necessary in these county sanatoria, but upon that I cannot now enter. They, like sanatoria for consumptives of every class, should, I think, be under the regular inspection of the medical officer of health of the county. The existence of county sanatoria would surely obviate some of the objections to the obligatory notification of tuberculosis.

I have been speaking this morning exclusively of sanatoria adapted to the treatment of pulmonary consumption, but I need scarcely say that the treatment adopted in these institutions is, with modifications, equally applicable to tuberculosis affecting other organs and tissues. The efficacy of what I may call sanatorial schools planted in the keen but salving air of Margate and of other points on our eastern coast, in tuberculous adenitis or glandular enlargements in children, has been long recognised by the medical profession and highly encouraging results have been obtained at the Institut Verneuil in Brittany by exposing the victims of scrofulous joint disease to the blusterous breathings of the vexed Atlantic. The ratepayer of this country is an Issachar, not couching between two burdens but loaded with innumerable heavy bales that are bending down his strong back, and one hesitates, therefore, to propose the addition of even a small bundle to the pile, but when I suggest special schools in suitable localities and under medical control for the reception of poor children with swollen necks or crippled hips and knee-joints, I feel that I am only recommending a readjustment of the load which will give some immediate ease, and will, in the long run, permanently lighten it. Our Metropolitan Asylums Board and our London School Board have both concerned themselves with the education of the weak-minded. That is a beneficent and useful undertaking and no one grudges the large sums of money that have been expended on it, but it has obvious limitations, for you may gild but you cannot expand "the straitened forehead of the fool." Considering the huge multitudes of poor children in our pestiferous city hutches and hovels who are maimed and lamed for life by the burrowings of the tubercle bacilli in their glands and joints, to say nothing of those who go under and are deposited in batches in our suburban cemeteries; considering further that the children thus afflicted are often, not only of rare physical beauty, but of fine mental fibre—for tubercle is greedy of our fairest and best; and considering that their affliction is in its early stages very remediable, I do not hesitate to affirm that the care and cure of scrofulous children is a more pressing and promising public obligation than the education of the weak-minded. If you deal adequately with all your scrofulous children now, taking them away from their squalid homes and from over-crowded asylums, workhouses, and schools, immersing them in a pure atmosphere and feeding them copiously—*pace* Professor Koch—on milk and meat free from bovine tubercle, with surgical aid and such teaching as is needful to guide the growth of their precocious wits, you will relieve much poignant misery, prevent much decrepitude and pauperism, and materially reduce the amount of weak-mindedness in the next generation. A particular case often brings a truth home to us much better than any general statement. Well, I read in the newspapers only a few days ago the sad story of an inquest on a poor cripple, Leonard Paris, who at 19 years of age found what he called "his lonely, miserable existence" unendurable, and so threw aside his crutch and handled the revolver. From six years old he had suffered from hip-joint disease and although he had been liberally supported by his friends and had had the benefit of treatment in several hospitals, he remained unrelieved, for for four months before his death his temperature was feverish. But although his body wasted, his intellect remained vigorous and clear, as the pathetic letters he left behind him prove, while his sense of deprivation became more and more acute. Hope died within him; at last he wrote: "This time I mean to succeed; better a few moments of pain than an unbearable existence, chained by my merciless, hideous fetters to a disease which I know in my inmost heart to be incurable." The case of Leonard Paris appeals to me with peculiar force because the most brilliantly intellectual youth whom it has ever been my lot to meet, whose Oxford associates predicted for him a triumphant career, when stricken down by a recurrence of tuberculous hip-joint disease, also put out the light with his own hands. Had he and Leonard Paris had the benefit of sanatorial treatment at the outset of their malady there is reason to believe that the tragic issue would have been avoided. Thousands of helpless children around us now, with large, anxious eyes and pallid cheeks, are waiting to have their destiny decided. Is it to be health and gleesome toil or pain and dwining incapacity? Sentiency is the measure of my sympathy. I cannot feel the same pity for a happy jabbering idiot, unconscious of his own defects and with blunted sensibility, that I do for the pretty child who is blemished or racked by disease and cut off from all joyous activity while its emotions and imaginations are preternaturally vivid. I would plead most earnestly for the early, generous, scientific treatment of strumous children. That is one of the ways of preventing phthisis. I do not know what Mr. Cockerton would say to sanatorial schools, but this I do know, that our legislators ought to have no hesitation in granting to local authorities all necessary powers for grappling effectually with tuberculosis in the young.

LITERARY INTELLIGENCE.—Messrs. William Blackwood and Sons have just published a work dealing with British serpents by Dr. G. N. Leighton. We see from the prospectus that the book is the result of years of personal observation. The price is 5*s.* net.

HOW CAN THE TUBERCULIN TEST BE UTILISED FOR THE STAMPING OUT OF BOVINE TUBERCULOSIS?[1]

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PART I.—DIAGNOSIS.

A. Preliminary remarks.—The question before us is the stamping out of bovine tuberculosis, and more especially how the use of tuberculin can assist us in obtaining this result. The prominence given to tuberculin in this discussion is due to the fact that in our estimation, as well as in that of the most competent authorities, Koch's great discovery gives us the most efficient means of diagnosing tuberculosis during life. In my estimation the keystone of preventive measures must be a reliable and readily applicable method of diagnosis. I might be excused if, after stating this view, supported as it is by the weight of the highest authorities, I made no further attempt to prove its correctness. By following such a course my right to express a definite opinion might be challenged, and I might offer further food for the criticism of those who are still supporting our responsible governments in their attitude of agnosticism. Such an attitude is well expressed by Mr. Walter Long, the late President of the Board of Agriculture, in his 1899 Newcastle speech, in which he is reported to have said:—1. The data were still too indefinite and wanting in preciseness to justify them in asking Parliament for great votes of public money or to impose on stock-keepers compulsory measures entailing great loss. 2. They were not yet sure that those measures would be effectual. 3. The tuberculin test might be administered so as to render cattle incapable of reaction on a second application of the test, and that might be productive of fraud. 4. People who had studied the question most closely were not agreed as to the conditions under which the test should be applied. 5. The disease was difficult of detection unless one could rely on some such discovery as the tuberculin test. 6. At present too little was known, too much doubted, for Parliament to be justified in imposing upon the country heavy expenditure on wholesale restrictions which would be strongly resisted in many quarters, and which might not do anything effectual for the extinction of the disease.[2] Mr. Long's contentions receive support from Schütz's observations.[3] In 1891 this observer tested 66 head of cattle—51 reacted, of these 43 only were tuberculous; 15 did not react, and of these four were tuberculous. They are also supported by statements made by Professor Bang at the Congrès pour l'Étude de la Tuberculose chez l'Homme et chez les Animaux, held at Paris in 1898.[4] Mr. Walter Long's criticism, which was made some time after the publication of Professor Bang's communication, seems at first sight to express identical views. A careful consideration of Professor Bang's statements will, however, show that they do not entirely justify Mr. Long's conclusions. Professor Bang emphasises the reliability of positive reactions in the great majority of cases; he points out the conditions which may bring about failure of reaction and also the ways by which such errors may be avoided or considerably reduced. He shows also that most of the tuberculous cases which do not react are, firstly, cases in an advanced state of tuberculosis—i.e., those which can be easily diagnosed by other means; secondly, cases which have previously reacted and have acquired tolerance; and thirdly, cases in which a slight tuberculosis has been present but in which the disease is becoming arrested. I will be able to show that such cases should be no obstacle to proper administration. I wish also to emphasise the fact that although Professor Bang's restrictions may have been used by others for purposes of adverse criticism their author is not responsible for this and is undoubtedly one of the earliest and strongest supporters of the use of tuberculin in diagnosis.

We have, on the other hand, statements made by equally reliable and recognised authorities which are entirely favourable to tuberculin. I will not lengthen this communication by a detailed account of all the records available, for my purpose will be equally well served by quoting the conclusions which have been arrived at by Professor Nocard and by the Royal Commission on Tuberculosis after a careful compilation of records available and the carrying out of confirmatory experiments. Professor Nocard in 1892[5] gave a very useful summary of the earlier work done soon after the announcement of Koch's discovery of tuberculin, which he summed up as follows: "Tout le monde admet aujourd'hui l'éxactitude et la précision merveilleuse des indications diagnostiques fournies par la tuberculine."

After quoting Professor McFadyean's opinion and his "most implicit faith in tuberculin as a test for tuberculosis when it is used on animals standing in their own premises and undisturbed," the Royal Commissioners in their report on tuberculosis state: "We entirely accept these conclusions and entertain no doubt as to the value of tuberculin provided the test is applied by a competent veterinary surgeon and that the tuberculin is of trustworthy quality."[6]

B. Criticism of previous experiments regarding the value of tuberculin.—It is not difficult to account for the differences of opinion which have arisen out of the results of early experiments with tuberculin.

1. The reaction is not simply manifested by any rise of temperature, but, as Nocard and others have frequently observed, this rise of temperature is characteristic only under certain conditions which must be observed in order that the results should be reliable. (*a*) The animal submitted to the test should not be at the time subject to sudden variations of temperature or be suffering from pyrexia. Before applying the test it is therefore necessary to observe the animal for two or three days and to take its temperature morning and evening. Recently driven cattle especially should be tested only after they have been submitted to this preliminary observation. The calving period is also to be avoided. (*b*) In tuberculous animals a characteristic rise of temperature is usually observed between the ninth and fifteenth hours, but it is occasionally, though rarely, observed after the fifteenth hour. (*c*) A slight rise of temperature, not amounting to more than 1°C. above the normal temperature of the animal, cannot be considered characteristic, since healthy animals are liable to fluctuations of temperature capable of producing such a rise. It is therefore desirable to adopt some scale similar to that recommended by Nocard who considers a rise of 0·8° C. (1·4° F.) as having no significance; a rise of from 0·8° to 1·4° C. (from 1·4° to 2·5° F.) as being only suspicious and requiring the confirmation of a further test at the end of a month; a rise of from 1·5° to 3° C. (from 2·5° to 5·4° F.) as characteristic of tuberculosis when the conditions previously stated have been observed. (*d*) It is almost useless to add that no tuberculin should be used which does not come from a reliable source and which has been exposed to loss of activity by long keeping. The exact dose of each preparation should be carefully ascertained. Many of the earlier observers have not paid sufficient attention to these precautions. Thus Schütz has considered a rise of 0·5° C. as indicating a tuberculous reaction.

2. Sufficient care has not always been taken to make a thorough post-mortem search for minute tuberculous lesions on animals which had reacted and in the absence of very careful and minute examination it is unscientific to report an entire absence of tuberculosis.

3. The absence of reaction in animals suffering from advanced tuberculosis does not affect the value of the test. This absence of reaction is only what can be expected in the case of animals which are already saturated with the products of the tubercle bacillus. This state is probably analogous to the state of tolerance produced by frequently repeated doses of tuberculin. But when cows have reached such a stage of tuberculosis their state should be obvious to a competent veterinary surgeon, and as most of these animals would be suffering from advanced phthisis the clinical diagnosis could be confirmed by the bacteriological examination of mucus obtained by swabbing the pharynx according to the method recommended by Greffier.[7] (To excite secretion pilocarpine, from 25 to 30 centigrammes, may be previously injected.)

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[1] Abstract of a paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

[2] Manchester Guardian, Jan. 30th, 1899.

[3] Schütz: Arbeiten aus dem Kaiserlichen Gesundheitsamte, Band viii. See also Nocard: Annales de l'Institut Pasteur, 1892, vi., p. 50.

[4] La Semaine Médicale, 1898, p. 329.

[5] Annales de l'Institut Pasteur, vol. vii., p. 44.

[6] Report of the Royal Commission on Tuberculosis, Part I., Art. 13, p. 4, 1898.

[7] Bulletin de la Société Centrale de Médecine et Vétérinaire, 1890, p. 445.

4. The absence of reaction in the case of animals in an early stage of tuberculosis will, I think, be found to be very rare when the test is properly applied. The most remarkable feature of the tuberculin test is the power which it gives to detect extraordinarily small lesions, and it is this property which, I think, renders it so specially suitable as a basis for preventive methods and will allow such methods to be carried out economically—i.e., before infected animals have lost their value on the meat-market. But even if a few escaped it is obvious that early tuberculous lesions could hardly be a source of infection in other animals and that under a regular and thorough system of inspection these animals would be detected before they had become a source of danger to other animals or to man.

5. With regard to the tolerance acquired by cattle which have been tested several times I can best indicate to what an extent this might be a source of difficulty by giving the results of some experiments made for the Cheshire County Council by Mr. Laithwood, chief veterinary inspector of the county. I was able to follow these experiments closely, being engaged in another branch of the same investigation. In the space of 80 days several cows were tested five times at variable intervals with the following results (Table I.).

TABLE I.—*Effects of Testing with Tuberculin Repeated at Short Intervals.*

Reference No. of cow.	First testing.	Second testing, 45 days after first.	Third testing, 13 days after second.	Fourth testing, 14 days after third.	Fifth testing, 12 days after fourth.	Result of post-mortem examination and remarks.
5	?	?	–	?	–	Case of distomatosis; temperature irregular.
24	+	+	+	+	–	Advanced tuberculosis.
32	+	+	+	+	?	Slight tuberculosis.
37	+	+	+	+	–	Slight tuberculosis.
41	+	+	+	+	–	Advanced tuberculosis.
42	+	+	?	+	–	Advanced tuberculosis.
27	+	+	Not tested.	+	Not tested.	Advanced tuberculosis.
35	?	–	Not tested.	–	Not tested.	Healthy.
51	+	+	In calf; not tested	+*	...	Tuberculosis slight.

* Tested later than the others.

Three of the cows which had ceased to react were found to be still in the same state 35 days after the last test. ? indicates that the reaction was doubtful.

It was only at the fifth injection that the tuberculous cows all ceased to give a reaction, and this fifth injection had followed the fourth, third, and second testings at intervals of only 12, 14, and 13 days respectively. Nocard had previously obtained more carefully tested results showing that tolerance to tuberculin is not so easily produced as has been stated.

Fear of fraud cannot be considered a very sound argument against the use of a good method.

C. New experiments.—Having shortly referred to some of the evidence already available I must now record the results of experiments which have been conducted under my supervision since 1897 and in which an attempt has been made to observe all the precautions necessary to avoid the fallacies which have been previously discussed. I will also take advantage of the extensive investigation carried out in Aberdeen on behalf of the University Department of Agriculture in 1899. As a result of a conversation which I had with him, Mr. Gair Ashton, M.P., in 1897 decided to test practically the possibility of stamping out tuberculosis from the herd kept on his estate at Ford Bank. The probable cost of the experiment which I fully explained did not deter him, and with great liberality and public spirit he gave me the means of obtaining all the information which I could obtain from such an experiment. The small herd kept at Ford Bank consisted in 1897 of 21 cows, bullocks, heifers, and calves, several of which were tuberculous. The problems before us were, first, to stamp tuberculosis out of Ford Bank; secondly, to estimate the cost of this radical procedure; and, thirdly, to keep the new stock free from tuberculosis. Briefly speaking, these experiments were conducted as follows. All the stock on the farm was tested with tuberculin from the Institut Pasteur by Mr. Locke, assisted at first by Mr. King, the corporation chief veterinary inspector, and afterwards by Mr. Holburn, Mr. King's successor. The test was applied with all the precautions which I thought necessary and which I have previously indicated. In all cases the animals were kept under observation for two or three days before testing and their temperature was taken at least three or four times. After the injection of tuberculin the temperature was taken, with few exceptions, four times between the ninth and twentieth hours at intervals of three hours. The animals which did not react were at once transferred to recently disinfected sheds. Those which reacted were speedily sent to the abattoir. The carcasses of slaughtered animals were examined carefully at the abattoir by Mr. Holburn and the lesions found were carefully recorded. In doubtful cases the organs or parts of organs were referred to me for further investigation. The price obtained for each carcass was also noted. Each animal previously to being slaughtered was valued by an independent expert. All the calves were kept isolated from the first and were fed on boiled milk. No attempt was made to separate the calves of tuberculous dams from the others, of which there were very few. The stables which had been occupied by tuberculous cattle were disinfected thoroughly with chlorinated lime solution and then they were whitewashed. To fill the gaps made in the old stock new stock was bought subject to the tuberculin test, the animals being kept in a separate shed previously to the application of the test. All animals found to react were returned to the seller and only those which did not react were added to the old stock. This was done in order to ascertain the safety of relying on the tuberculin reaction as a basis for contract. The milk of none of the tuberculous cows was again used on the farm without being boiled, although there was no evidence of tuberculosis of the udder in any case. Finally, owing to Mr. Ashton's change of residence, all his cattle were sold by auction and a record was kept of the prices obtained for each animal. Shortly speaking, the results of the tests were as follows in the case of cattle which I have been able to keep sufficiently long under observation. (I have excluded all animals which after being tested once were lost sight of.) *Definite reactions:* 48 out of 49—i.e., nearly 98 per cent. The doubtful reaction gave place to a definite reaction on the second trial within three months, so that the failure was not a permanent one. *Positive reactions:* 19 out of 19 proved to be correct—i.e., 100 per cent. *Negative reaction:* 28 out of 29 proved to be correct at once—i.e., 96·5 per cent. The tuberculous cow which did not react had newly calved; this error was corrected within three months by re-testing. I believe that a method which gives such results may be considered as perfect as any other method of diagnosis can ever be expected to be.[*]

I am fortunately in a position to avail myself of the results of a later investigation bearing on a much larger number of animals examined under conditions such as may be easily observed in practice. I had opportunity to discuss with Professor D. J. Hamilton the conditions under which this set of experiments was carried out and I am fully satisfied that as far as they go the results may be received as absolutely reliable. I feel, however, that, owing to the facts that the temperature of the animals was taken only once before the test was applied and only between the tenth and thirteenth hours after the injection, the value of tuberculin was tested somewhat more severely than was necessary. It is not possible to reproduce here the tables of results given in the report of this experiment published in 1899 by the Department of Agriculture of the Aberdeen University.[†] The authors explain in this report that by arrangement with important butchers and cattle-owners they have been able to test a large number of cattle which were intended for slaughter, generally on the farm before removal, but when this was impossible the test was applied in the byre connected with the slaughter-house after the animals had been kept there for 24 hours. It will be obvious, therefore, that in the second group of cases the test was applied under

[*] See second part of this paper for the other results of this experiment.

[†] Report on an Investigation with regard to the Value of Tuberculin as a Test of the Presence of Tuberculosis in Cattle. By J. McLauchlan Young, F.R.C.V.S., and J. S. Walker, M.B., D.P.H., Aberdeen University, 1899.

conditions not altogether favourable to success. The main conclusions of the authors regarding the value of tuberculin are summed up as follows by themselves: "1. Our experience confirms the generally accepted opinion that tuberculin loses its virulency when kept for any length of time. 2. When used with care and under proper conditions tuberculin is a reliable diagnostic of tuberculosis in cattle, except (*a*) when the tubercular lesion is minute, or (*b*) when the disease has become generalised, especially in the case of aged and emaciated animals." The authors sum up these results in four tables giving a detailed account of the age of the animals tested, of the temperatures observed, and of the lesions found in the carcasses after slaughter. I have prepared on the basis of their own records the following table (Table II.).

TABLE II.—*Analysis of the Sources of Failure in the Aberdeen Experiments.*

—	Number tested.	Age.	Tuberculin reaction. -	Tuberculin reaction. +	Tuberculosis found post mortem.	Error in tuberculin reaction. +	Error in tuberculin reaction. -
						Per cent.	Per cent.
Heifers ...	60	1½ to 2 years.	54	6	10	0·0	6·6*
Bullocks ...	100	2 years.	80	20	24	0·0	5·0†
Bulls	3	3 years.	2	1	1	0·0	0·0
Cows	77	Average 7½ years.	52	25	42	0·0	32·6

* Corrected 1·6 per cent. † Corrected 2·5 per cent.

NATURE OF CASES IN WHICH ERROR WAS OBSERVED.

Heifers.—Nos. 28 and 30: Bad tuberculin used. No. 31: The syringe leaked; quantity injected unknown. No. 60: The dose was possibly too small; this is the only error not fully explained by experimental accidents. This reduces the percentage of failures to 1·6.

Bullocks.—No. 3: The only lesion was a *fibrous* tubercle in the lung. No. 7: There was a rise of 1° F. The animal was not well; this is not a negative but a doubtful reaction. No. 19: There was a minute calcareous tubercle in the mesenteric glands, tubercle bacilli were found, but the process was apparently becoming quiescent. It is doubtful whether any of these cases is a complete failure; two cases may be accepted as such. This reduces the percentage of failures to 2·5.

Cows.—Nos. 5, 6, 7, 19, and 33: In all these cows there was a rise of temperature ranging between 1° and 2° F. They should have been considered doubtful. No. 16 was eight years old. Nos. 27, 33, 58, and 60 were nine years old. Nos. 34, 59, and 61 were 10 years old. Nos. 7 and 62 were 11 years old. Nos. 6, 17, 20, 42, and 65 were 12 years old. Nos. 5 and 19 were 13 years old. All the failures therefore occurred in cows over eight years of age.

We may safely exclude from this table all the results which are vitiated by experimental faults clearly admitted. On the other hand, we must retain those results which though of doubtful value may be accepted as necessary defects which would occur under ordinary circumstances. After excluding from the animals one the age of which was not stated and five which cannot be considered as having been properly tested (in two cases old inactive tuberculin was injected; in another the syringe leaked and the quantity was not known; in two others it was doubtful whether there was active tuberculosis or not) I have constructed tables bringing out facts which had not been previously paid sufficient attention to and which corroborate my previous experience in Manchester (Table III.).

Even if the five cases which I have excluded on good grounds from the group of animals under eight years of age were retained in that group the total number of errors would have been nine out of 209 tests, an error equal to 4·3 per cent. I should state also that all the positive tests were found correct, whilst of the nine cases in which a negative reaction was misleading seven were affected with extremely localised tuberculosis arrested or nearly arrested, and only two were suffering from pulmonary tuberculosis and might have been a source of infection. In this group, therefore, the amount of serious and material error amounted to two out of 209, or less than 1 per cent. With regard to the second group of aged cows they were all in an advanced state of tuberculosis and their state would have easily been recognised by clinical examination.

I will show later that under a proper system of inspection tuberculosis should never reach such a degree as to render tuberculin useless as a method of diagnosis. It may be interesting to note that similar experiments conducted in 1891 in the Duchy of Baden by Lydtin, according to the same plan as that adopted in Aberdeen, yielded the following results. Of 110 head of cattle there was negative tuberculin reaction in 70, in none of which were tuberculous lesions found post mortem; there was positive tuberculin reaction in 39, and tuberculous lesions were found post mortem in 37 of them; and there was doubtful reaction in one animal. In this experiment the negative reactions were free from error. The

TABLE III.—*Influence of Age and Disease on the Results of the Tuberculin Test.*

—	Number of animals giving a definite reaction.	Tuberculin reaction. -	Tuberculin reaction. +	Tuberculosis found post mortem.	Total number of tuberculous animals.	Error on - reaction.	Error on + reaction.
					Per cent.		
Heifers.							
Under two years of age	57	51	6	7	12·25	1	0
Bullocks.							
2 years of age ...	98	78	20	22	22·44	2	0
Bulls.							
3 years of age ...	3	2	1	1	33·33	0	0
Cows.							
4 years of age ...	5	4	1	1	20·0	0	0
5 ,, ,, ...	9	5	4	4	44·44	0	0
6 ,, ,, ...	19	9	10	10	52·6	0	0
7 ,, ,, ...	10	4	6	6	60·0	0	0
8 ,, ,, ...	8	7	1	2	25·0	1	0
Totals for all animals up to eight years of age	209	160	49	53	25·4	4 = 1·91%	0
Cows.							
9 years of age ...	6	5	1	5	83·0	4	0
10 ,, ,, ...	6	5	1	4	66·4	3	0
11 ,, ,, ...	4	3	1	3	75·0	2	0
12 ,, ,, ...	6	6	0	5	83·0	5	0
13 ,, ,, ...	3	3	0	2	66·6	2	0
Totals for cows above eight years of age	25	22	3	19	76·0	16 = 76%	0

errors in connexion with the positive reactions were two in number, but as no precaution appears to have been taken to allow the animal to rest before the injection of tuberculin, and as perhaps not sufficient attention was paid to deep-seated lymphatic glands, the results obtained were remarkably accurate.

The results of these three sets of experiments which bear upon a total of 408 animals leave, I think, no room for doubt as to the efficiency of tuberculin as a diagnostic agent when it is properly used. The amount of error attributable to failure of the test is very small; indeed, it is trifling when compared to the errors which are inherent to most methods of diagnosis, many of which are, nevertheless, used as a basis for administrative procedure. To the direct evidence which I have already given I may add some indirect evidence which I have collected in the course of my investigations on cow's milk as a source of infection. In the course of six years nearly 2000 samples of milk have been examined in my laboratory; of these samples over 500 were from single cows. I am greatly indebted to the Manchester Sanitary Committee, and especially to Dr. Niven, for the facilities which have been given to me for collecting the information which I wished to obtain; to Mr. Holburn, the chief veterinary inspector; and to Mr. Lloyd, the veterinary inspector attached to the Sanitary Department, for supplying me with all the material I required. I have also to acknowledge similar help received from Mr. Tattersall, the medical officer of health of Salford, and his veterinary inspector, Mr. Fordham. The following table records some of the

data which I have thus obtained. The smallness of the numbers is undoubtedly disappointing considering the amount of trouble taken, but the absence of any discordant result renders these figures, small as they are, very significant. Most of the 505 cows the milk of which was examined separately had suspicious udders. A reliable record of the effects of the tuberculin test was obtained in 50 cases only. The following table (Table IV.) shows the effects of inoculation of guinea-pigs with the milk of these 50 cows.

TABLE IV.—*Information Collected in Connexion with the Examination of Milk from Single Cows with Diseased Udders since 1896.*

Year.	Total number of cows examined.	Total number in which a record of the tuberculin test was obtainable.	Number of cows giving a positive reaction.	Number of cows giving a positive reaction and the milk of which was tuberculous.	Number of cows giving a negative reaction.	Number of cows giving a negative reaction and the milk of which was tuberculous.	Doubtful reaction.	Milk tuberculous.
1896-97	30	15	12	5	3	0	—	—
1898	4	0	—	—	—	—	—	—
1899	173	14	12	1	2	0	—	—
1900	208	19	12	2	5	0	2	0
1901	90	2	0	0	0	0	—	—
Total	505	50	36	8	10	0	—	—

This evidence shows that none of the cows giving a negative reaction with tuberculin yielded tuberculous milk. On the other hand, all those cows which yielded tuberculous milk gave a positive reaction.

PART II.—ADMINISTRATION AND FINANCE.

A. Methods which have been recommended for the prevention of tuberculosis in cattle.—When one reviews the various methods which have been recommended, and sometimes carried into execution, for the purpose of checking the progress of tuberculosis, one is struck with the fact that most of these measures had for their chief object the protection of the consumer of tuberculous products, more especially meat and milk. The measures provide the means of controlling to a certain extent cattle which have become tuberculous, but they do not make, in my opinion, any adequate provision for the eradication of existing tuberculosis or for the prevention of the spread of the disease among cattle. I think that the chief causes of the failure of the legislation which has been proposed so far in various countries have been the following. 1. Nowhere has the use of a sufficiently accurate method of diagnosis been made the basis of the measures taken. Tuberculin has been recommended, but option in favour of clinical methods has almost invariably been allowed. This, as I have shown, has for effect to allow a large number (probably from 80 to 90 per cent.) of tuberculous animals to remain undetected. On the other hand, if the use of tuberculin had been made compulsory as a basis of action with regard to cattle under seven or eight years of age, not more than 2 or 3 per cent. would have escaped for a time but would have ultimately been discovered on re-injection. (The proportion of aged cattle kept on farms is gradually diminishing.) 2. With the exception of the short and necessarily incomplete trials which have been made by the State of Massachusetts and the Belgian Government those methods have been partial and not general, so that what good was obtained in one farm or district has been counteracted by the absence of precautions in a neighbouring farm or district and by the shifting of tuberculous cattle from districts under control to those not supervised. 3. When slaughter of tuberculous animals has been resorted to this has generally been done without discrimination, and the necessary compensation has become so costly as to be prohibitive. These have, in my opinion, been the chief causes of failure, and I have therefore attempted to find if it would not be possible to discover some solution of these difficulties.

B. Experimental stamping-out of tuberculosis in a small herd.—1. I have shown by the Ford Bank experiment how, by a careful application of the tuberculin test, disinfection of premises, and thorough disinfection, it is possible in the short space of one year to replace entirely a highly tuberculous stock by stock free from tuberculosis remaining on the original premises. This stock remained entirely free from tuberculosis during a second year. To make this clear I may sum up the results in the following way: May, 1898.—Old stock: 12 milch cows and heifers, 11 tuberculous; three bullocks, two tuberculous; and six calves, all free from tuberculosis. Total, 21 animals, 13 of which were tuberculous, or 61·88 per cent. February, 1900.—New stock, including old stock which had not previously reacted: 20 milch cows and heifers,[10] none of which were tuberculous; one bullock not tuberculous; and nine calves born since the beginning of the experiment, none of which were tuberculous. Total, 30 animals all free from tuberculosis.

2. In my experiments it has been impossible to test the effects of general measures except by the rigid exclusion from the estate of new cattle which had not passed the tuberculin test. This was done by making a negative tuberculin reaction a *sine qua non* condition to the introduction of any fresh cattle. 24 cows or heifers, apparently healthy and specially selected, were offered to Mr. Ashton's steward under these conditions. They were all isolated and tested with the following results: of 11 cows five years of age or more six reacted, and of 13 cows or heifers from two to three years of age one reacted, giving a total of 24 animals, seven of which reacted.

3. The financial aspect of the question, which from a scientific point of view is not the most important, is probably, from the practical and administrative sides, the chief difficulty which has to be overcome before satisfactory preventive measures can be put in force. The Ford Bank experiment was therefore conducted in such a way as to yield as much information as possible on this point. It will, however, be obvious to those who are acquainted with farm management that it was impossible for Mr. Ashton to have the experiment conducted as economically as it could have been by a practical farmer. Owing to the conditions of a farm kept in pleasure-grounds the Ashton experiments must be considered as indicating the maximum cost of preventive measures. This, however, does not in the least diminish their importance. In May, 1898, the approximate value of the old stock, which consisted chiefly of 21 well-bred Yorkshire Shorthorns (not pedigree cattle), was £262.[11] 13 of these gave a positive reaction at the first testing with tuberculin and were slaughtered at once—viz., eight cows, three heifers, and two bullocks, which were all found post mortem to be tuberculous. Except in one case all the viscera had to be condemned; in addition to this, one whole carcass was condemned on account of generalised tuberculosis, and the half of another was also found to be unfit for food. The sum realised for the carcasses was £159 4*s.* 8*d.*, and the value of the remaining stock was £48 10*s.* (total, £207 14*s.* 8*d.*); the actual loss was therefore £54 5*s.* 4*d.*, to which must be added the veterinary charges, which amounted to £10, making in all £64 5*s.* 4*d.* There was also a serious loss of dairy produce which was due to the immediate slaughter and which would not have occurred to the same extent had arrangements been made to slaughter the diseased cows only at such time when they were in a proper condition and it had been possible to replace them rapidly. (The milk of diseased cows should, of course, be always sterilised before use.) The next step taken was to replace the diseased stock. The shippons having been thoroughly cleansed and disinfected new stock was bought subject to the tuberculin test—that is to say, the cows were kept at Ford Bank for about a fortnight, during which they were tested, and only those not reacting were kept. A fee of £3 was paid to the seller as a general consideration for the trouble caused by this arrangement. But I think he found further compensation in the prices which he charged for the cattle sold under these special conditions.

The experiment carried out by the Cheshire County Council may be compared with advantage with the Ford Bank experiment. This important experiment was conducted on very much the same lines as the Ford Bank experiment, but about

[10] The average age of these cows was higher than in the case of the old stock.

[11] The cattle were in these experiments valued by an independent expert, the value of whose opinion is generally recognised in the district.

one year later. The cattle tested at the county council farms at Worleston and Holmes Chapel numbered over 70. The results were very similar to those obtained at Ford Bank.

A general consideration of the results obtained at Ford Bank, Worleston, and Holmes Chapel leaves no doubt as to the value of tuberculin as a diagnostic agent—that is to say, as far as the positive reactions are concerned. This is a matter of great importance from an administrative point of view, for tuberculin could hardly be employed for administrative purposes if it were found that many non-tuberculous cows gave a reaction similar to that given by tuberculous cows. With regard to the value of the negative reactions I have shown in the first part of this communication that by proper attention to certain conditions they are also quite reliable. It is also evident that the immediate loss caused by indiscriminate slaughter of all tuberculous animals is very considerable. Valuable stock being excluded, there was a loss of £52 11*s.* 6*d.* on the nine tuberculous animals from Worleston; that is, a little more than £5 16*s.* per head.[12] At Ford Bank the loss on the 13 animals slaughtered was £64 5*s.* 9*d.*—i.e., a little under £5 (veterinary charges included). On the 22 animals from both places the average loss was nearly £5 7*s.* per head.

C. Influence of age on the losses caused by tuberculosis.—In order to obtain information on this point I divided all cattle into five groups: (1) five years of age and over; (2) three years and up to five years exclusive; (3) two years and up to three years; (4) one year and up to two years; and (5) under one year. Then I found for each group the number of tuberculous animals, their estimated value under ordinary circumstances as dairy stock, and their value as meat after they had been slaughtered on account of tuberculosis and thoroughly inspected at a public abattoir by competent veterinary inspectors.[13] I cannot give here the details of these calculations which I have summarised in the following table (Table V.).

TABLE V.—*Showing Losses caused by Slaughter of Tuberculous Cattle of Various Ages.*

Ford Bank.

—	Percentage of cows and heifers tuberculous.	Estimated value of 100 animals before testing.	Loss on 100 such animals after slaughter of tuberculous ones.	Percentage loss on capital.
	Per cent.			Per cent.
5 years and above	100	£1900	£735	38·00
3 years and up to 5 years ...	75	£2015	£822	30·86
2 ,, ,, 3 ,, ...	100	£1400	*Nil.*	*Nil.*
1 year ,, 2 ,, ...	*Nil.*	£800	*Nil.*	*Nil.*
Under 1 year...	*Nil.*	£320	*Nil.*	*Nil.*

Worleston and Holmes Chapel.

	Per cent.			Per cent.
5 years and above	31·25	£1515	£189	12·47
3 years and up to 5 years ...	20·69	£1800	£240	13·33
2 ,, ,, 3 ,, ...	*Nil.*	£1300	*Nil.*	*Nil.*
1 year ,, 2 ,, ...	*Nil.*	£800	*Nil.*	*Nil.*

It is evident from these figures that if herds are to be kept free from tuberculosis by a method which will not cause unnecessary pecuniary loss this must be done by removing all animals which have become tuberculous before they have reached their third year. Before that date the slaughter of tuberculous animals does not involve any serious loss to the farmer; at a later period the loss becomes very serious, more especially in connexion with cows between the third and fifth year, when they have reached their greatest value as milkers. With regard to bullocks the problem is simpler, but it is equally evident that all tuberculous animals should be isolated before they are two or three years of age and then slaughtered as soon as they can be profitably sold to the butcher. If all the tuberculous stock over three years were eliminated from our herds it would be quite easy for the farmer, assisted by competent veterinary inspectors, to keep his stock ever after practically free from tuberculosis without any serious expenditure to himself.

D. Practical experiment to test the relative meat value of tuberculous and non-tuberculous cattle under two years of age.—In order to test whether the foregoing conclusions were correct Mr. Gair Ashton generously consented to bear the cost of a new experiment. This I will call the second Ford Bank experiment. Ten barren heifers not over two years of age were to be bought by the steward at a fair or from a cattle dealer. They were to be selected in the usual way on the basis of their external appearance and estimated value and *not subject to the tuberculin test.* After a few days' rest they were to be tested and the animals reacting were to be entirely separated from those non-reacting. This young stock was then to be fattened and when ready for the butcher their value as live stock was to be estimated by an expert. The animals were then to be tested again and slaughtered at the Manchester abattoir and their carcasses were to be thoroughly inspected by Mr. Holburn, the chief veterinary inspector, who kindly undertook to report upon them. The carcasses were then to be offered for sale at the meat market. Mr. Jones[14] was to keep a complete account of the cost of agistment, special feeding, and testing, as well as of the amount realised after slaughter. By this experiment I hoped to obtain definite answers to the following questions. 1. Old tuberculous cattle being removed, what would be the cost of keeping the purified herds free from tuberculosis by the slaughter of young tuberculous animals during the first few years following the first application of the stamping-out measures? 2. What loss, if any, would be incurred by the selling to the butcher of young tuberculous carcasses? 3. Would the tuberculin reaction prove a practical basis for the carrying out of the method which I had suggested? The second Ford Bank experiment was carried out according to the general plan indicated above. Circumstances, however, prevented our waiting for a time favourable to purchase on suitable terms. It was also found impossible to select the best time for fattening and selling. The 10 heifers were tested a second time on Nov. 15th, with the result that the six which reacted in July reacted again and the four which did not react continued to give a negative reaction. They were then sent to be slaughtered at the Manchester abattoir on Nov. 22nd. Their carcasses were there examined by Mr. Holburn in the presence of Mr. Locke, who had tested the cows, and Mr. Jones. Mr. Jones reported to me as follows: "In each case Mr. Holburn was able to say which of the animals had reacted, *without any reference to the testing notes;* it was therefore perfectly clear that tuberculosis was present in all those animals that had reacted. In no case was it necessary to condemn any part of the carcass." The original cost of the 10 heifers *plus* the cost of keeping them for four months and fattening them had been £120 11*s.* 6*d.* The total sum realised after slaughter was only £90 12*s.* 2*d.* There was therefore a loss of about £3 per head. This loss was not so great as that borne in connexion with cattle of all ages, which was over £5 per head; but in my opinion there should have been no loss at all; in fact, I expected a profit. There are, however, certain features of the experiment which account for the failure. 1. The cattle had been bought irrespectively of the conditions of the market and, as I understand, too late in the season. 2. The steward who bought the cattle had not much experience of the value of live stock; this was the opinion of two experienced men who warned me before the conclusion of the experiment of the fallacy which this might introduce. It was also unfortunate that two heifers in calf should have been bought, as such animals, whatever their value might be in life, were not (before calving) suitable beasts for the meat market. As a speculation the experiment was not a success; but considering the mode of purchase and selling it could not be expected to be a sound transaction. The total sum paid for the 10 animals in July was £96. Their total estimated value as living stock in November was £108 10*s.* Their total cost, *plus* the cost of keeping and fattening, was in November £120 11*s.* 6*d.* If from this total expenditure the sum of £5 spent for the carrying out the

[12] A later estimate based on the losses caused by the slaughter of 19 tuberculous animals brought the loss up to £7 7*s.* per head. This would bring the average loss on the two experiments up to £6 3*s.* per head. (In this later estimate, however, are included some valuable animals the estimated value of which in life was out of proportion to the value of their carcass; the loss on such animals should always be considered separately.)

[13] Information regarding the age of cows which cannot be found in the Cheshire County Council Report I have obtained through the courtesy of Mr. R. P. Ward, the organising secretary to the Technical Instruction Committee.

[14] Mr. Jones had charge of the cattle and dairy at Ford Bank.

test is subtracted there remains still a total expenditure of £115 11*s.* 6*d.* It is therefore obvious that even if tuberculosis had been out of the question there would have been a loss in the transaction due to some error in the purchase. It is also possible that too much had been spent on special feeding—£1 1*s.* per head. The experiment has not therefore yielded the same results as it would have yielded in the hands of an experienced and skilful farmer. But although it was not successful with regard to management it has nevertheless given very important results with regard to the relative value of the flesh of tuberculous and non-tuberculous young cattle. The following table (Table VI.) of results gives the value obtained for eight of the 10 carcasses (two of them were sold together and it was impossible to ascertain afterwards their separate value).

TABLE VI.—*Showing the Prices obtained for Eight Carcasses.*

A. Tuberculous heifers not in calf.	B. Tuberculous heifers in calf.	C. Non-tuberculous heifers.
No. 45. £9 16*s.* 6*d.*	No. 47. £7 15*s.* 0*d.*	No. 44. £9 1*s.* 6*d.*
No. 46. £8 12*s.* 0*d.*	No. 49. £7 12*s.* 3*d.*	No. 52. £7 9*s.* 0*d.*
No. 51. £7 16*s.* 0*d.*	—	No. 53. £6 7*s.* 0*d.*
Totals £26 4*s.* 6*d.*	£15 7*s.* 3*d.*	£22 17*s.* 6*d.*
Averages per head £8 14*s.* 10*d.*	£7 13*s.* 7½*d.*	£7 12*s.* 6*d.*

The same animals were also valued before being slaughtered, and it was found that during life they stood in the same relation as their carcasses did. The same prices had been paid originally for the three tuberculous heifers in Group A and the three healthy heifers in Group C. There seems, therefore, no evidence showing that a moderate amount of tuberculosis depreciates the meat value of young carcasses. As a matter of fact, in this case better value was obtained for tuberculous carcasses than for those which were free from the disease—a fact to which I will have to allude again. This matter being one of great importance I thought it desirable to obtain an independent opinion from Mr. Holburn who had inspected the carcasses. I therefore asked him to give me without any reserve his views on the results we had obtained. With his permission I reproduce the answer :—

Markets Department, City Abattoirs, Water-street, Manchester.
Jan. 23rd, 1900.

DEAR PROFESSOR DELÉPINE,—In answer to your inquiry as to the market value of Mr. Ashton's experimental cattle and as to whether there was any difference in the conditions of those animals that reacted to the tuberculin test from those that did not react as regard their saleability, I feel quite confident in expressing the opinion that as regards their carcass value those animals that reacted came out as well as—in fact, one or two of them a little better than—those that did not react to the test.

ALFRED HOLBURN, M.R.C.V.S., Chief Inspector.

This valuable statement is in complete agreement with the results which I have recorded above. It is, however, evident that it would have been preferable to use animals two and a half or three years old for the experiment. The age which I had fixed was two years, in order to avoid cows in calf, but this complication was not successfully avoided. Taking everything in consideration it seems, therefore, evident that if young tuberculous cattle be properly prepared for the meat market there could not be a more profitable or convenient way to dispose of them than by that method. It is equally certain that at no other period in their life could their flesh be utilised with less danger to public health[15]—a danger which should disappear entirely if private slaughter-houses were entirely abolished and all the meat submitted to thorough inspection as it is in the Manchester city abattoirs.

E. Disposal of the milk of tuberculous cows.—Whilst I consider it advisable to deal with young stock under three years of age as rapidly as possible, I think that in the present state of things the indiscriminate slaughter of all tuberculous animals above that age would be attended with considerable and unnecessary losses. Only cows in an advanced stage of tuberculosis, showing evidences of wasting or of tuberculosis of the udder, should be slaughtered without delay. They are serious sources of infection and the longer they are kept the less their value becomes, if they retain any at all.

With regard to the cows which are not in an advanced stage of tuberculosis it is desirable that those in milk should be fattened only after lactation had ceased or had been caused to stop. As it is impossible to foretell how soon the udder of a tuberculous cow will become diseased it would be wise to consider the milk of all tuberculous cows as suspicious. It should therefore be sterilised before being used. With the object of finding how this suspicious milk could be utilised I made two years ago a number of experiments. I found that it was not easy to obtain butter free from abnormal taste with cream which had been heated for a few minutes to a temperature exceeding 75° C., and that contrary to results obtained by some other observers complete safety could not be obtained by the heating of cream up to 85° C. for 15 minutes. Some of the results obtained are given in Table VII.

TABLE VII.—*General Results of Experiment on the Sterilisation of Cream.*[16]

—	Temperature.	Duration of exposure after the temperature indicated had been reached.	Results of inoculation of guinea-pigs with equal quantities of treated and untreated tuberculous cream.
First set of experiments.	74° C. (165° F.)	30 minutes.	Tuberculosis slight and delayed, well-marked after three weeks.
	76° C. (169° F.)	10 ,,	Tuberculosis slight and delayed, well-marked after three weeks.
	82·5° C. (180° F.)	5 ,,	Tuberculosis nearly normal.
Second set of experiments.	85° C. (185° F.)	15 ,,	Tuberculosis considerably delayed (two months).
	70° C. (158° F.)	45 ,,	Tuberculosis delayed but well-marked after three months.
	65° C. (149° F.)	360 ,,	No tuberculosis after three months.
	65° C. (149° F.)	180 ,,	Slight tuberculosis after one month.
	65° C. (149° F.)	60 ,,	No tuberculosis after one month.
Controls.	—	—	Well-marked tuberculosis after three weeks.

No reliance should be placed on pasteurisation of cream at temperatures up to 85° C. for the times indicated in the above table. I regret to say that in a previous paper I had expressed the opinion that a lengthened exposure of cream to a temperature below 85° C. would probably be sufficient to destroy the tubercle bacilli. I stated, however, at the same time, that I had not completed the experiments which I was making with the view of confirming the experiments of other observers.[17] In my opinion, therefore, the *milk of all tuberculous cows should be boiled before it is used.* I do not venture at present to suggest any special means of utilising this milk; all I wish to do is to express a *warning against an implicit belief in the statements which have been made regarding the ease with which the milk of tuberculous cows can be rendered innocuous.*

F. Innocuousness of tuberculin inoculations.—It has been frequently stated that the use of tuberculin was detrimental to milch cows. Not being able to investigate this matter personally I have asked Mr. J. Jones to give me his impression upon the effects which our experiments had had on the dairy cows kept at Ford Bank. The following was his answers: "The quality of milk from tested stock was all that could be desired. I do not consider testing to be at all detrimental to dairy stock in any way if carefully done." Knowing that Mr. Walter W. Law of Briarcliff Manor, New

[15] I do not wish to convey by this the impression that the consumption of meat from tuberculous cattle is attended with much danger.

[16] I wish to acknowledge here the cordial assistance which I received from Dr. E. J. Sidebotham and Dr. F. J. H. Coutts in the carrying out of these experiments, some of which lasted for a considerable time.

[17] See Veterinarian, July and August, 1899.

York, had for some years past determined to clear his extensive herds from tuberculosis, and had had for this purpose his cows repeatedly tested with tuberculin, I asked him to supply me with some information on the effects of the testing on healthy cows. He had the great kindness to forward my request to Professor Leonard Pearson of the University of Pennsylvania who inspects biannually the Briarcliff Farms dairy herd. This herd is composed of over 600 "thoroughbred or high-grade" Jersey cows. Professor Pearson replied as follows:—

University of Pennsylvania, Department of Veterinary Medicine,
Philadelphia, March 31st, 1900.

DEAR SIR,—In reply to the questions submitted by Professor Delepine regarding the effect of tuberculin on healthy cows I would say:—1. No effect on the flesh or the weight of the animals has been observed. The members of the Briarcliff herds, tested twice each year, are in high condition. 2. The quantity of milk usually diminishes slightly for the milking of the morning following the administration of the tuberculin. This diminution is not constant and is not greater than often occurs at other times from a change of feed, a change of weather, or other natural cause. The loss does not exceed 5 per cent. of the total product of the herd. I have the impression that this is due to the slight disturbance to which the cows are subjected during the test. The herd as a whole is remarkably productive, the yield per cow per day often exceeds 20 pounds *in the winter*. 3. No change in the richness of the milk has been observed. It is very rich. It is not possible at Briarcliff to compare tested and untested cows in respect to the above points, because there are no untested cows on the farm. It is clear, however, that the Briarcliff standard is extremely high in regard to all of them. I may add that the large herd (500 milch cows) of Mr. Francisco in New Jersey is tested with tuberculin and Mr. Francisco states that his herd is more productive and the cows in better condition than before it was his practice to test. Mr. Gordon of the Walker-Gordon Laboratory Company holds the same opinion as a result of his experience with herds aggregating more than 500 cows.

Yours very truly,
LEONARD PEARSON.

To Walter W. Law, Esq., Briarcliff Manor, New York.

G. Disposal of valuable stock.—I would urge that pedigree cattle in which tuberculosis has not produced serious lesions should be carefully isolated and watched, that these animals should be used for breeding purposes and slaughtered as soon as possible after they have sufficiently fulfilled the purpose for which they are kept. In the event of the disease affecting their general health they should be slaughtered without further delay.

H. Market value of living tuberculous animals.—Before concluding I must refer to an aspect of the question which the experiments previously recorded bring out. Early tuberculosis, far from affecting detrimentally the appearance of young and middle-aged stock, is often associated with all the external appearances of flourishing health. Many tuberculous cows are exceptionally good milk producers. They have often a very good market value during life. It is not therefore easy to persuade the farmer that tuberculosis may be a serious source of loss to him. He does not consider it a matter of importance to discover whether a cow is tuberculous or not so long as the animal is a good milk producer or does not lose flesh. It is not denied that a herd affected with tuberculosis is liable to greater depreciation than a herd free from tuberculosis, but it is urged that in the present state of things the loss of capital involved by the removal of tuberculous cattle would be so great that the ultimate benefit would not be sufficient or obtained soon enough to prevent ruinous losses. It is therefore stated that farmers cannot be reasonably expected to adopt measures which would be contrary to their own interests. If the matter could be considered in the light of a commercial transaction affecting only one generation of speculators having no responsibility towards their country or humanity the above argument might be considered sound. It is, however, the duty of the State to see that the present generation does not sacrifice for its own benefit the patrimony of future generations, thereby doing great harm to the country. It is also the duty of the State to see that any condition of things which tends to perpetuate the existence of a disease which is so detrimental to man as well as to the lower animals is checked as speedily as possible. Even if the financial argument against the stamping out of tuberculosis were as sound as it appears to be it does not prove that farmers are justified in remaining passive. If through ignorance they have allowed the evil to grow beyond control they cannot consider this a valid excuse for not doing their duty as soon as they know what their duty is. The fact, however, that the carrying out of this duty towards the State would mean complete ruin in the case of many small farmers whose welfare is also of importance to the whole country clearly shows that a part of the losses caused by the stamping out of tuberculosis should be borne by the State.

CONCLUSIONS.

1. Tuberculin is an almost infallible test of the presence of tuberculosis in animals under seven years of age when this fluid is used with proper care. In older cattle clinical methods are more reliable than the tuberculin test as used at present. (The use of larger doses than the usual ones may, however, be resorted to with advantage in these cases.) 2. It is possible by the use of tuberculin and thorough disinfection of cattle-sheds to stamp out tuberculosis from a herd in the course of one year. 3. Cases of infection which may accidentally occur after this preliminary removal of tuberculous cattle can be easily and economically detected by the periodical use of tuberculin. 4. Tuberculous animals between two and three years of age can be disposed of on the meat market without serious loss. 5. The slaughter of cows in calf or of milch cows not in an advanced stage of tuberculosis involves a serious loss to the farmer, and so long as tuberculosis is as prevalent as it is at the present time it is doubtful whether the measures necessary for the extirpation of tuberculosis can be left to private efforts without State help. 6. To remove the chief sources of infection immediate slaughter should be resorted to in the case of all animals in a state of advanced tuberculosis, and of all cows with tuberculosis of the udder. 7. Milch cows and cows in calf in which tuberculosis is not very advanced should be isolated and slaughtered only after they have been suitably prepared for the butcher. The milk of tuberculous cows should invariably be sterilised by boiling. 8. Valuable breeding animals free from advanced tuberculosis or tuberculosis of the generative organs should be isolated; they can be kept *for a time* for breeding purposes provided the calves are isolated and fed on sterilised milk. 9. Measures which do not provide for the removal of all tuberculous animals from a district, for the disinfection of all cattle-sheds in that district, for the periodical testing of all the animals within the district, and which do not give the means of preventing the importation of tuberculous animals cannot be expected to yield satisfactory results.

MEASURES RECOMMENDED.

On the basis of these conclusions I feel justified in recommending once more the general measures which I have advocated on several occasions during the last few years. These may be summed up as follows:—1. Division of the whole country into a number of well-defined administrative areas each provided with an efficient staff of inspectors. 2. Marking and registration of all cattle for purposes of inspection and notification. (This would, of course, mean the inclusion of tuberculosis among the recognised contagious diseases.) Systematic periodical inspections of herds and cowsheds within each administrative area. Testing with tuberculin of all cattle. 3. Isolation of all tuberculous cattle. Disinfection of sheds which have been occupied by tuberculous cattle. 4. Immediate slaughter of all cattle in an advanced state of tuberculosis (including all cases of udder tuberculosis). 5. Fattening of all animals not in an advanced state of tuberculosis for the meat market. All cattle should be slaughtered in *public abattoirs* so as to insure *thorough meat inspection*. 6. Compensation during one year or two for losses incurred by owners of cattle, except in cases regarding which there had been gross or culpable neglect. After this *transitional period of compensation* the presence of a case of advanced tuberculosis in a cowshed to render the owner liable to a penalty. 7. Testing of all cattle brought into the area so as to prevent the introduction of fresh sources of tuberculosis. No cattle above six years of age to be imported. 8. All the milk from tuberculous cattle to be boiled before use. Control of all imported foreign dairy produce so as to enforce the same standard of purity as in the case of home produce. 9. To avoid a sudden national depression in the dairy industry, which would be favourable to foreign produce, I further suggest that *the enforcement of these measures should not be simultaneously carried out all through the country*, but that they should be at first enforced in a certain number of administrative areas, to which year after year other districts should be added, until the whole country was under administrative control. It is probable that the work could be accomplished in some five or six years.

N.B.—This paper does not deal with evidence showing that bovine tuberculosis is communicable to man; this has been done by the author in a series of papers published since 1892—vide *Medical Chronicle* (1895), THE LANCET (1897), &c.

THE TREATMENT OF MELANCHOLIA.

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AND
H. DE MAINE ALEXANDER, M.D. EDIN.,
ASSISTANT PHYSICIAN TO THE PERTH DISTRICT ASYLUM.

IN the *Journal of Mental Science* for October, 1900, we recorded the results of some observations on the various physical changes occurring during the acute and sub-acute stages of melancholia. In our previous paper we pointed out our belief that the majority of recent cases of melancholia pass through a definite course prior to recovering or becoming chronic; and we divided that course into an acute stage and a sub-acute stage, summing up the symptoms characterising the two stages as follows. A. *Acute stage.*—1. Mental symptoms: great depression, restlessness, vivid hallucinations, and sleeplessness. 2. Pulse rapid, from 90 to 120 per minute, of high tension, and tending to be irregular; arterial pressure high (from 140 to 180 millimetres of mercury). 3. Temperature tending to be febrile (from 99° to 100° F.). 4. Urine scanty; excretion of urea deficient; trace of albumin present. 5. Tongue furred and foul; no desire for food or drink; digestive power of stomach upon coagulated albumin practically *nil;* motor power of stomach weak; bowels constipated and stools very offensive. 6. Skin dry. B. *Sub-acute stage.*—1. Mental symptoms less acute; the patient generally sleeps well; hallucinations, if present, do not affect conduct. 2. Pulse regular, softer, from 70 to 80 per minute; arterial pressure from 120 to 130 millimetres of mercury. 3. Temperature never above 98·4°. 4. Urine more abundant, excretion of urea considerably increased; albumin never detected. 5. Tongue clean; appetite for food and drink returning; digestive power of stomach-juice at first weak but later active; tendency to constipation less marked. 6. Skin becoming moist; sometimes perspiration profuse.

Before passing on to the subject of treatment we desire to record certain further observations made upon the urine excreted during attacks of melancholia.

During the acute stage of the disease we found that the excretion of chlorides was normal, but when this acute stage was unduly protracted they were diminished. The ethereal sulphates were increased during this stage of the disease—an indication of intestinal putrefaction. In the sub-acute stage the chlorides were diminished but rose gradually to normal as the patient recovered. The diminished excretion of chlorides in the urine during melancholia is mentioned by Simon,[1] but without reference to any particular stage of the disease. The ethereal sulphates were not increased, showing that the antiseptic functions of the intestinal secretions had been resumed.

In the course of another year's work we have verified all these observations, and we believe that recent acute melancholia is a disease very amenable to treatment. Our first attempts at treatment were directed towards lowering the blood-pressure by means of erythrol tetranitrate, increasing the excretion of urea by the administration of ammonium carbonate (in 10-grain doses), in obtaining a healthy action of the skin by means of hot-air baths, and assisting digestion and assimilation by artificially digested food. We have discarded erythrol tetranitrate after an extended trial, as, although successful in some cases, it was very uncertain in action. The excretion of urea was certainly increased by the exhibition of ammonium carbonate, but we did not notice any benefit accrue to the patient as a result of its administration, and as this drug only differs from urea in having two

FIG. 1.

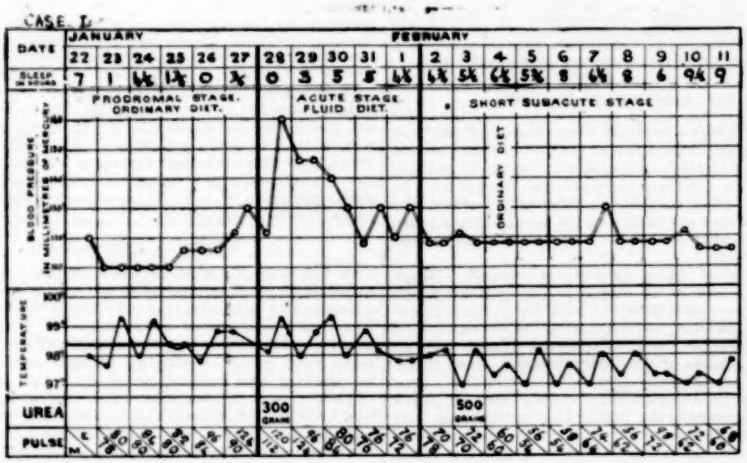

Chart illustrating Case 1.

FIG. 2.

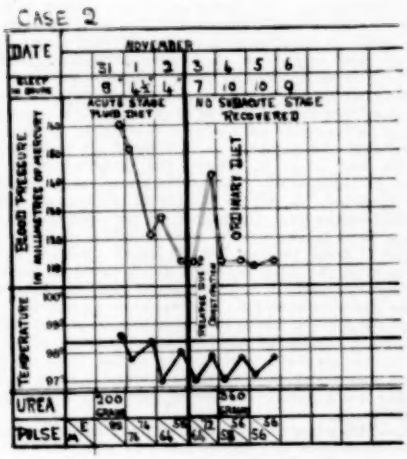

Chart illustrating Case 2.

[1] Clinical Diagnosis, third edition, p. 297.

more molecules of water it is highly probable that the increased amount of urea obtained in the urine was really due to the oxidation of this alkaline salt in the body. Hot-air baths gave little relief and were rather troublesome as a routine practice. Artificially digested food soon became intolerably nauseous to patients who already had no desire for food. These early attempts at treatment were therefore not encouraging, and more particularly so as they failed to induce a sufficiently increased flow of urine to carry off the accumulating waste products of tissue metabolism.

In our previous paper we recorded the fact that if a patient, while passing through the acute and sub-acute stages of the disease, be placed upon a fixed measured dietary of solids and liquids the amount of fluid excreted by the patient in the acute stage is less by many ounces than that excreted during the sub-acute stage. What becomes of the surplus ounces of fluid in the acute stage of the disease? They are not excreted by the integumentary system because the skin is abnormally dry, they are not exhaled in the breath, and, as we have shown, they are not excreted by the kidneys, as the urine is scanty in amount. There is but one explanation and that is, that in the acute stage of the disease the fluids of the body are in some unexplainable way broken up, an insufficient amount of fluid is left for carrying away the products of tissue waste, and these accumulate in the body. There is a deficiency of fluid in the tissues and the demand for it must be met by administrating to the patient a copious supply of liquid, and it is essential that part of this fluid should be nutritive and easily assimilated.

In the treatment of our last eight cases of acute melancholia we have discarded all our earlier attempts at treatment and have worked upon the lines above indicated. The patients upon admission were put to bed and placed upon an exclusively fluid diet of three pints of milk and three pints of weak tea (sweetened with sugar) per diem and as much water as the patient cared to drink. The tea must be weak, as if strong it tends to raise the mean blood-pressure.[1] Persons suffering from acute melancholia are, as a rule, thirsty and take this fluid diet readily. No solid food was given until the patient asked for it and complained of hunger. The result of this treatment in these eight acute cases of the disease has been most satisfactory. In every case the

FIG. 3.

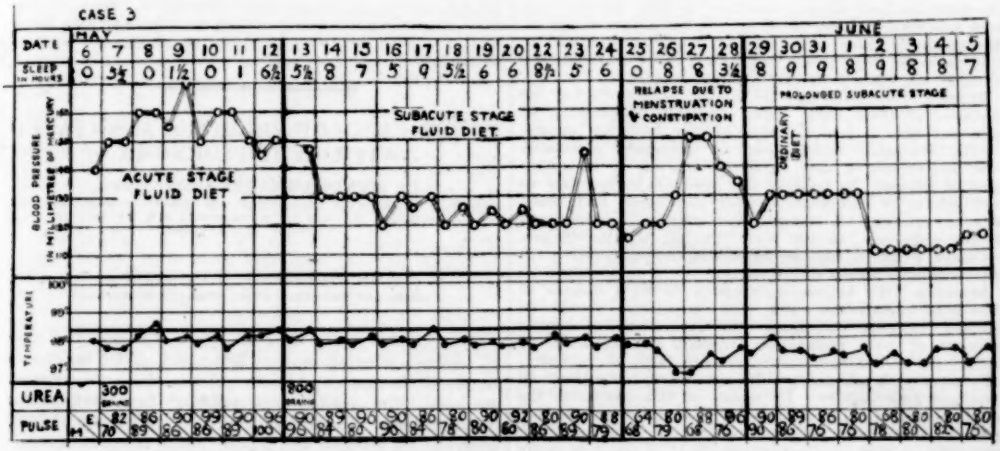

Chart illustrating Case 3.

FIG. 4.

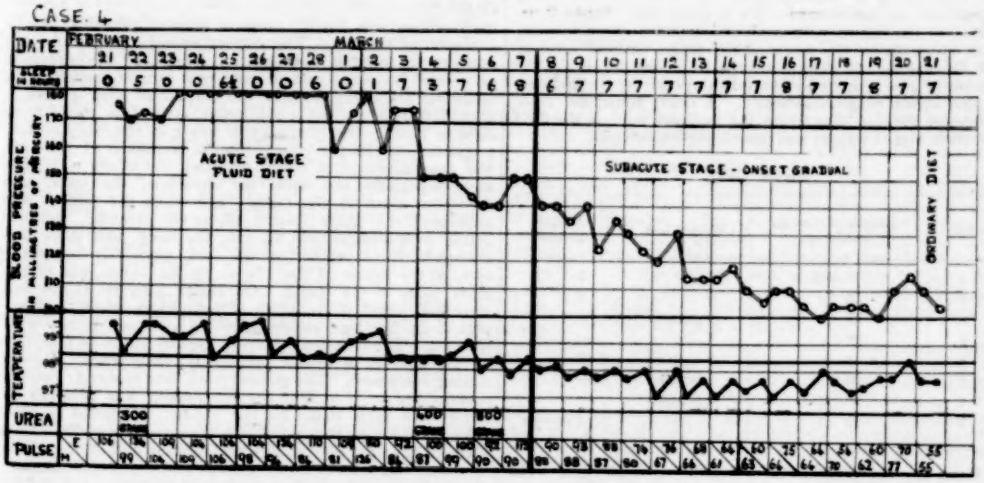

Chart illustrating Case 4.

[1] Oliver: Blood and Blood-pressure, p. 186.

urine increased in amount, the skin acted freely, and the excretion of urea was augmented—in some of the cases to 800 grains per diem. The arterial tension fell rapidly and steadily to normal or subnormal and the habit of sleep returned. The only drug administered was citrate of potassium in from 20 to 40-grain doses thrice daily. This was gradually reduced and finally stopped altogether when the nitrogenous equilibrium was re-established.

Early treatment is imperative in this disease, and our experience has shown that those patients who had been ill for some consillerable period before admission took longer to recover than those in whom the disease was of comparatively recent onset. Of our eight cases five were treated early and in none of these patients did the acute symptoms last more than a week, and in them the sub-acute stage was either absent or of only a few weeks' duration. The remaining three cases were of long standing, and in them the acute stage lasted from two to three weeks and the sub-acute stage was prolonged for many weeks.

Relapses.—We have had no serious relapse during the treatment of these eight cases, and any threatening of such was due to one or more of the following causes. 1. The obstinate constipation so frequently associated with melancholia if not regularly relieved is a certain cause of relapse. In treating this symptom in our cases we used salines in combination with strychnine and when necessary enemata. 2. Menstruation temporarily accentuated all the symptoms, mental and physical, of the disease. 3. Gastric irritation induced by putting the patient too early or too suddenly upon a solid dietary.

Summary.—We believe melancholia to be a disease of disordered metabolism and that treatment should be directed towards increasing the excretion of waste products of this metabolism through the channels of the urinary and integumentary systems, and we mechanically accomplish this end by administering to our patients an abundant fluid dietary. By means of this treatment the blood gets rid of its overcharge of waste products and the arterial tension falls. We assist digestion by giving milk frequently, and in small quantities, as it is the most easily assimilated food. We consider the forcing of solid food (or such food as custards) upon a patient suffering from acute melancholia just as injudicious treatment as would be the feeding of a patient suffering from typhoid fever exclusively on beef-steaks. We append four charts illustrative of our cases, with a short summary of each case. Each chart shows the temperature, pulse, arterial tension, and the amount of sleep obtained from day to day. The amount of urea excreted on certain days during the 24 hours is also shown diagrammatically. A small additional table illustrates the fact that while the patients were on the fluid diet their loss of weight was practically immaterial.

Weight Table.

Cases.	Length of time on fluid diet.	Weight lost.	Weight gained.
1	7 days.	0	0
2	5 ,,	0	0
3	23 ,,	2 pounds.	—
4	28 ,,	3 ,,	—
5	8 ,,	0	0
6	38 ,,	1 pound.	—
7	33 ,,	5 pounds.	—
8	11 ,,	—	5 pounds.

CASE 1.—The patient was a female, aged 34 years. The chart is interesting because it shows the attack from the commencement. The temperature became febrile on Jan. 23rd, but the tension did not rise until the 28th, when the symptoms became very acute. Under fluid diet treatment and rest in bed all the symptoms had subsided by Feb. 1st. On the nights of Jan. 29th, 30th, and 31st sleep was obtained by the administration of two drachms of paraldehyde. She made a good recovery. Weight is rapidly lost during the onset of the disease and this patient lost nine pounds in seven days though she was on ordinary diet.

CASE 2.—The patient was a female, aged 64 years. The attack was treated early—within a week of onset. The acute symptoms lasted only three days. Sleep was obtained by the administration of two drachms of paraldehyde on the nights of Oct. 31st and Nov. 1st and 2nd. There was practically no sub-acute stage. The patient recovered.

CASE 3.—The patient was a female, aged 42 years. She had been ill for one month prior to admission to hospital. The acute stage lasted for seven days. Sleep was obtained upon the nights of May 7th and 9th by the administration of two drachms of paraldehyde. The sub-acute stage was complicated by a threatened relapse and was prolonged, but the patient has now completely recovered.

CASE 4.—The patient was a man, aged 34 years. He had been ill for two months prior to admission. The acute stage lasted for 15 days. The onset of the sub-acute stage was gradual and the patient, though much improved, is not yet recovered at the present date (June 20th, 1901). In the acute stage sleep was obtained upon the nights of Feb. 22nd, 25th, and 28th by the administration of two drachms of paraldehyde.

Murthly, N.B.

THREE CASES OF PRURITUS ASSOCIATED WITH LYMPHADENOMA.

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AND
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CASE 1.—A woman, aged 42 years, was admitted into St. George's Hospital on Feb. 20th, 1901, under the care of Dr. F. G. Penrose who kindly permits this publication of the case. The patient was suffering from well-marked lymphadenoma. Her illness dated from the autumn of 1899, when she lost strength and noticed lumps in the neck. She took to bed in November, 1900. On admission she was depressed mentally and physically and was markedly anæmic. The legs were œdematous; in the neck, the axillæ, and the groins were masses of enlarged glands, and over the anterior mediastinum was found extensive dulness, probably due to a glandular tumour. The patient sweated much and the temperature inclined to be hectic. The blood was examined on several occasions and showed only simple anæmia with moderate leucocytosis. The red corpuscles were generally about 3,000,000 per cubic millimetre; the white varied from 8000 to 14,000—the lymphocytes being in the fairly normal proportion of 18 per cent. Intense irritation of the skin was complained of at times, affecting the whole body, but more especially the neck, the shoulders, the back, and the outer sides of the limbs; and when the patient was uncovered she made violent efforts to scratch. Scratch marks were conspicuous all over the body, and there was brownish discolouration of the skin, especially below the eyes, at the bends of the elbows, in the axillæ, and on the inner sides of the thighs. On March 13th Dr. Cottle was consulted about an eruption of pemphigus which had appeared on the legs, accompanied by increased irritation of the skin. The eruption improved rapidly under an ointment of tar and in a month practically disappeared, though itching continued. The general condition, however, steadily deteriorated, and on May 3rd the patient was removed by her friends to a Home for the Dying. It should be mentioned that before the pemphigus appeared arsenic had been given in the form both of Fowler's solution and of cacodylate of soda. Whether or no the arsenic had any causal relationship to the pemphigus, it was certainly not responsible for the pruritus and pigmentation, both of which were of older standing.

CASE 2.—A female patient, aged about 20 years, was sent to Dr. Cottle by Dr. G. M. Pittock of Margate on Nov. 11th, 1896. The history given was that in June, 1896, being already somewhat ailing with enlarged glands and anæmia, she underwent some worry in her work and was vaccinated upon her appointment to a clerkship in the Post Office. Soon afterwards she came out in an eruption of papules which was suspected of being secondary syphilis from the vaccination. When seen by Dr. Cottle she was thin and very anæmic, with masses of enlarged glands at the root

of the neck. She complained of intense itching of the skin, especially at night. The skin was much pigmented generally—least on the legs and most on the abdomen, around the eyes, and on the flexures of the elbows—the colour varying from a deep yellow-brown to that of light nutgall. There were numerous deep scooped-out nail grooves or furrows in the skin, especially at the back of the neck, with some papules on the face and many small white scars on the neck and chest, probably where the skin had been scooped out by the nails. Dr. Cottle regarded the affection of the skin as due to malnutrition and in no way connected with vaccination or syphilis. Sir William Gowers, to whom also the patient was sent, remarked in a letter to Dr. Cottle that "she now presents symptoms of subacute lymphadenosis with (possibly pseudo-) Addison's disease." Remarking the enlargement of glands and the profound pigmentation of the abdomen, he observed: "The pigmentation may be due to enclosure of the sympathetic plexuses of the abdomen in masses of enlarged glands, though these cannot be felt. See article on Hodgkin's disease in Reynolds's System of Medicine, vol. v., p. 376." Large doses of iron and arsenic were prescribed, together with rest, good feeding, cod liver oil, tar lotion, and carbolic acid ointment. The pruritus was relieved, but the patient died on Feb. 2nd, 1897, death being attributed in the medical certificate to lymphadenoma in the first place and to Addison's disease secondarily.

CASE 3.—This is the case of a male patient, aged 34 years, who had spent some years in India. In December, 1896, he met with a dogcart accident in that country, sustaining some cuts and abrasions, as a consequence of which the right leg became inflamed. A month later he was attacked with "septic rheumatism" in a very severe form, affecting almost every joint of the limbs and also the neck, the jaw, and the eyes. After a long illness he was sent home to England, where he apparently made a good convalescence, so that at the end of 1897 he was allowed by competent authority to return to India. At this time some glands in the groin, the axilla, and the neck were already slightly enlarged. Towards the end of 1899 an abscess or carbuncle formed on the left thigh and failed to heal in spite of frequent incisions. A voyage to Australia was undertaken, but without resulting in benefit. Œdema of the genitals and lower extremities set in and the patient was finally invalided to England, where he arrived in May, 1900. The thigh was now operated upon by Mr. F. C. Abbott who removed a quantity of diseased tissue, leaving an area of the size of the palm of the hand to heal by granulation. In the course of the summer this area became slowly though securely healed—a point worth mentioning as having some bearing upon the nutrition of the skin. The general condition was now one of pronounced lymphadenoma, the disease being apparently limited to the lymphatic glands and most advanced in the inguinal, pelvic, and abdominal groups, but all the other groups were obviously affected. The blood showed nothing characteristic beyond a leucocytosis which might be referred to the suppurating wound. Dr. Patrick Manson, who kindly saw the patient in consultation with Dr. Lee Dickinson and Mr. R. T. P. Collyns of Wimbledon, made a special examination of the blood for malarial and filarial parasites, but with a negative result. Not to record what is immaterial to the present purpose, the patient, after many vicissitudes of febrile temperature, dropsy, dyspnœa, and various abdominal troubles due to continual changes in the size of the glandular tumours, sank from exhaustion and inanition on June 1st, 1901. Throughout the illness—certainly for the last 18 months—not the least of his troubles was persistent pruritus of the whole skin, especially, perhaps, of the hands, the shoulders, the neck, and the scalp; but any part which might happen to be exposed and within reach was immediately subjected to scratching. On the covered parts of the body small papules and furuncles were of frequent occurrence, but the intensity of the pruritus varied quite independently of any eruption. Eventually the skin of the trunk, and to a less degree that of the face and the arms, became pigmented to a tint that raised some suspicion of suprarenal disease, but the pigmentation may have been due to a prolonged course of arsenic which was only stopped upon the appearance of a severe eruption of herpes zoster. The arsenic, however, was not the cause of the pruritus which set in long before the administration of the drug and continued for several months after its discontinuance.

Remarks.—These three cases suggest the existence of a real connexion between lymphadenoma and pruritus—something more than mere coincidence. To say the least of it, pruritus is not a common or widely recognised complication of lymphadenoma which is itself a rare disease, and Osler is the only text-book writer we know of who refers to its occurrence. Neither Trousseau nor Gowers, both of whom describe certain eruptions in lymphadenoma, mentions the occurrence of pruritus; but Nékám of Budapest, in a recent monograph upon the skin affections of leukæmia, refers incidentally to those of pseudo-leukæmia or lymphadenoma and includes pruriginous affections in the list. The only unequivocal examples of pruritus in lymphadenoma that we have met with in the dermatological literature of the last few years are two cases recorded by Hallopeau and Prieur,[1] and these two cases seem to be essentially of the same kind as those which we have just described. We conclude, therefore, that lymphadenoma entails a certain degree of liability to pruritus, and our own three cases would seem to show that this complication is an unfavourable sign. It is unnecessary to allude to the constant and too little remediable suffering which is thereby added to a distressing disease, and we will only discuss the nature and significance of the association. As for the prognostic gravity of the pruritus we can only point to the rapid course of the lymphadenoma in Case 1 and Case 2, and to its inveterate character in Case 3 in spite of many fallacious improvements and every favourable circumstance of fresh air, luxury, and attention. In this connexion it is of interest to refer to a severe but much more chronic case of lymphadenoma which was shown by Dr. Lee Dickinson at a meeting of the Clinical Society of London last April. In this case, although the skin has become extensively affected with lymphoid growth, pruritus is, and always has been, entirely absent.

In the three cases here reported the pruritus clearly did not depend upon gross skin lesions such as growths or eruptions, although papular eruptions of some sort and lesions due to scratching were generally present, but would seem to have been akin to the itching that occurs in jaundice and may with probability be attributed, in part at least, to a poison in the blood or in the lymph. Whether in such cases some special toxin is produced by the lymphadenoma or whether the pruritus results merely from obstruction of the lymphatic circulation by the glandular tumours and consequent vitiation of the lymph is a matter for speculation, but certainly the former theory is not inconsistent with the febrile temperature that characterises severe cases of lymphadenoma. It should be borne in mind that degenerate and ill-nourished skins itch. In the pruritus that occurs in the aged and in those of feeble circulation and health the most appreciable changes in the skin are those associated with malnutrition and atrophy—dryness, accompanying paleness or pigmentation, warts and moles, dilatation of vessels, and in other parts a wasted state of skin tissue so that it feels thinner than natural and has in great measure lost its elasticity; and in these conditions there is no direct evidence of toxic influences. The pruritus of jaundice possibly belongs to the same class, for it does not set in, as a rule, till after the jaundice has existed for some time or has begun to decline. At the opposite end of the scale we have the pruritus of gout, which is a pure example of the toxic variety, for it may be, and generally is, associated with a perfectly healthy condition of the skin.

The cases which form the subject of this paper would seem to belong to an intermediate class in which it is difficult to know how far to attribute the pruritus to malnutrition of the skin and how far to toxic influence. We must even be prepared to allow that the neurosis of sensation which constitutes the pruritus is of reflex character and due to local irritation elsewhere than in the skin—for example, in the abdomen from enlargement of the mesenteric glands. Be this as it may, we have little doubt as to the prognostic significance of pruritus in lymphadenoma, and that this complication, especially if attended by pigmentation of the skin, is of grave augury in cases which upon other grounds do not seem utterly hopeless.

With regard to pigmentation in lymphadenoma we have already quoted the views of Sir William Gowers in Case 2, and it may be opportune to remark that the late Sir George E. Paget founded similar views upon a post-mortem basis. In a former number of THE LANCET[2] is reported a case under the care of Dr. Paget (as he then was) which was

[1] Annales de Dermatologie et de Syphiligraphie, 1896, p. 568.
[2] THE LANCET, Feb. 22nd, 1879, p. 258.

described as "lymphadenosis with brown pigmentation of the skin" (characteristic of Addison's disease). On post-mortem examination the suprarenal bodies were found perfectly normal, but the semilunar ganglia and solar plexus were involved in a closely aggregated mass of enlarged glands. It must not be forgotten, however, that long-continued scratching will itself lead to pigmentation, and it is a curious fact that in Sir G. E. Paget's case the patient complained much of irritation on the palms of the hands and soles of the feet, and marks of scratching were noticed on several parts of the body.

We have purposely avoided any discussion of the pruriginous or other skin affections of leukæmia as distinguished from lymphadenoma, but for the convenience of those who are interested in the subject we may refer to Někám's publication already mentioned and to a long article on the subject, with an elaborate bibliography, by Pinkus.[1]

CONGENITAL HEPATIC CIRRHOSIS WITH OBLITERATION OF THE BILE-DUCTS.

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WITH NOTES OF ADDITIONAL CASES BY E. L. WALKER DUNBAR, M.D. ZÜRICH, AND THEODORE FISHER, M.D., M.R.C.P. LOND.

THE recent papers of Rolleston, Ford, and others, with the older researches of J. Thomson, show the importance of these somewhat rare cases. It is possible that they may throw light on the problems of the production of biliary cirrhosis in the adult or explain some of the obscure forms of cirrhosed liver in older children, whether we finally regard them as due to congenital absence of the bile-ducts or to obstruction by calculi or to a poison in the fœtal blood acting on the liver-cells and on the bile-ducts. The following case illustrates many of the points which have been raised by previous observers.

CASE 1.—A male infant was under my observation from Feb. 27th, 1901, till his death, at the age of six months, on April 27th. He seemed quite well and strong when born and was fed at the breast for two weeks or more. He had no jaundice and passed at first meconium and then yellow stools, but in the third week violent vomiting occurred for several days. He was in consequence weaned, but became jaundiced and the stools changed to a white hue. About Jan. 1st he had been placed under the care of Dr. E. L. Walker Dunbar for six weeks and was then admitted by her into the Women's Hospital for 14 days. Dr. Dunbar writes that at that time he took food well and passed stools quite devoid of bile, and white, except when ox-gall or calomel had been administered. In the hospital he was fed at first with milk-and-water, then with condensed milk, and finally with Nestlé's food. In the first week he gained weight, but having lost again during the second week he was sent home to be under his mother's care, and the unfavourable diagnosis was made known to her. When seen by me at the General Hospital on Feb. 27th he was well nourished but deeply jaundiced and the stools continued quite white. The abdomen was slightly distended, but nothing else abnormal could be detected. Later the jaundice became of a brownish tint, and the liver and spleen were moderately enlarged and distinctly palpable. There were no symptoms of syphilis. He was treated as an out-patient for about seven weeks, receiving liquor hydrargyri, Scott's emulsion, and other preparations, and with the exception of occasional dyspeptic troubles and the slightly increasing jaundice his health remained good. On April 25th he seemed failing; slight ascites occurred, though without enlargement of the abdominal veins; there was some irritation of the skin over the chest, otitis media was noted, and the mother reported that a little blood had been passed per rectum. He was taken into the hospital. On admission he appeared to be fairly vigorous and took his meals well, but the urine was deeply tinted and contained numerous granular casts. The stools became yellow again, possibly from admixture with the urine, and he died suddenly on the 27th.

As regards the family history the mother stated that she had always enjoyed good health except for occasional attacks of tonsillitis. Her first pregnancy had miscarried, in the second she had twins, and in the third she had a healthy child, all of whom were still alive. During her last pregnancy she suffered much from what she took to be dyspeptic troubles and was confined to the house for some weeks. Dr. Dunbar tells me that three years ago the mother brought to her a male infant, one of twins, with a syphilitic lesion on the thigh which rapidly yielded to mercurial treatment. The mother becoming again pregnant fell into bad health, but quickly improved under similar measures which were continued till her confinement. As far as is known no fresh treatment was needed before the last confinement.

The necropsy was made 50 hours after death by Dr. J. M. Clarke. It was noted that the body was stained a deep but bright yellow and that all the organs were similarly coloured. There was very little subcutaneous fat, but the heart and lungs were normal in every respect. The liver weighed about 11 ounces, which is nearly double the normal weight for a child of that age. It was of a very deep green olive or bronze colour and smooth in section. The substance of the organ was not friable or granular and, on the other hand, it was not specially hard. In the neighbourhood of the portal fissure there was much thickened connective tissue, and scattered through the liver around branches of the ducts there was an excessive amount of the same tissue, but this condition did not apparently extend through the whole substance. No concretions could be found in the gall-bladder or the ducts. A portion of the common duct was enormously distended and contained a clear fluid with deposits of dark pigment on the walls. The papilla of the common duct in the duodenum was prominent, and both in the portal fissure, in the mesentery, and behind the peritoneum were several enlarged firm glands of a reddish colour. On further examination the gall-bladder was found to be thickened and apparently completely closed. No trace of the common duct could be discovered for half of its length; the distended portion was about an inch in length and of the size of a pigeon's egg. The spleen weighed five ounces and was large and firm with patches of thickening of the capsule. In the kidneys the cortex was swollen, but the capsule stripped easily. Microscopical examination of the liver showed extensive fibrosis mainly surrounding the lobules, but invading them in places and cutting off islets of liver cells. Small bile-ducts were numerous. Nowhere was there small-celled infiltration of the margin of the fibrous tissue, which may be taken to indicate that the fibrosis was not progressive. The liver cells showed no degeneration and the contents of the bile-ducts were dark and prominent.

By the kindness of Dr. Dunbar and Dr. Theodore Fisher I am able to give notes of two other cases observed by them and not previously recorded.

CASE 2.—Dr. Dunbar says: "I delivered Mrs. L—— of a living boy in 1877 who was deeply jaundiced at birth. The mother remarked at once upon the colour, adding that she had had another child like it who had died. I afterwards learnt that she had lost previously six children in early infancy, all born alive and all deeply jaundiced. They lived from a few days to a few weeks. J. L—— lived for seven months an uneasy existence, suffering from sickness and constipation. The diet was carefully regulated and every effort was made, more or less unsuccessfully, to procure a food acceptable to his digestive organs. The stools were hard and scanty and always smeared rather than incorporated with yellowish-brown colouring matter. I made a post-mortem examination and found the liver enlarged. The bile-ducts seemed to me to be replaced by mere connective tissue, but the condition of the stools made me think that there must have been some communication, however minute, between the liver and intestine. On examination of the fresh liver tissue I could not satisfy myself that there was any definite cirrhosis or destruction of the cells. Four out of 11 children of this family lived to adult life. One of them showed symptoms possibly due to hereditary syphilis, but in the others none were observed."

CASE 3.—Dr. Fisher writes: "A male child, A. B——, was first seen by me nine weeks after birth. It was then deeply jaundiced, of a dirty yellowish colour, with a tinge of green. The colour was sufficiently deep to be perceptible over the gums and soft palate. The child was thin and weighed only seven pounds, but could not be said to be either drowsy or restless and appeared fairly comfortable. There was a rash on the buttocks very suggestive of syphilis. The liver could be felt one and a half

[1] Archiv für Dermatologie und Syphilis, October, 1899.

inches below the costal margin and the spleen about three-quarters of an inch. The mother stated that the child had been of a deep yellow colour from the time of birth and that the motions were generally white, but sometimes of a pale yellow. There were five other children in the family alive and well, and the mother had had no miscarriages. During the time the child was under observation the bowels were moved three or four times daily. The motions were semi-solid and like white lead in consistence and colour. There was never a trace of yellow in them. The urine was of a reddish yellow and gave a marked reaction with nitric acid. The saliva was tested for the sulpho-cyanide reaction and gave a faint colour. Five weeks later the child died. The liver and spleen were found to be much enlarged. The gall-bladder was present but the common duct could not be found. There was nothing noteworthy in any of the other organs. Microscopic sections of the liver showed well-marked multilobular and monolobular cirrhosis and numerous small bile-ducts. Some of the bile-ducts were distended with dark material and dark granules were seen in many of the liver cells."

These cases, then, seem to be rare, for Rolleston can only find 59 recorded instances, of which three were operated upon, one of them, Treves's case, being successful. This last case, however, may be of a different kind, for the jaundice had not commenced till the third year instead of within a day or two of birth, and the patient was not operated upon till his nineteenth year. It has been stated that none of the typical cases survive more than eight months, mild ones may survive and be mistaken later for alcoholic cirrhosis in children. They must be carefully distinguished from simple icterus neonatorum and septic jaundice, though umbilical and other hæmorrhages seem not uncommon in them. In this patient no organisms except the bacillus coli were found in the dilated portion of the duct, and the general health remained good in spite of the extreme jaundice. Nor do they resemble the *ictère splénomégalique* of French writers, which seems to occur in older children, and presents a gigantic spleen extending over a large part of the abdomen, and ascites, stunted growth, clubbed fingers, deep jaundice, and enlarged abdominal veins.

Perhaps the most common cause of large liver in childhood is syphilis. Syphilis cannot be traced in many of these patients with obliterated ducts, though Thomson thinks that it may intensify the morbid process at times. Moreover, the condition of the liver is quite unlike that which is due to the luetic infection. Finally, the anæmia with a large spleen and liver found in some rachitic and other children may produce slight jaundice, but it shows no other points of resemblance and is frequently cured.

The first question to be solved is whether the changes in the liver are prior to those in the ducts or *vice versâ*. Where no meconium has been passed the disease must have arisen at a very early stage of fœtal life, but in this patient and several others neither white stools nor jaundice appeared for some time after birth. If yellow stools are passed for some days it seems strong evidence that the bile channels are open after birth and therefore that no congenital failure of development has existed. We can hardly weigh against this fact the cases referred to by Dr. Rolleston and Dr. Dunbar where the changes in the liver were slight and recent and those in the ducts well developed. If, however, we think that both changes may occur after birth in some patients from inflammatory processes, these cases are not without importance. Thomson, indeed, finds that instances have occurred where the jaundice was very deep and that yet the ducts were pervious. He adds that if death takes place early no lesion or only some thickening of the duct walls may be found, while it is in those who live some months that extreme degeneration and even complete absorption of the ducts are generally found. This would seem conclusive, but Thompson suggests that as the bile found is usually much thickened virtual obstruction of the ducts may have been the cause of the cirrhosis of the liver. However, it appears proved that the complete destruction of the ducts is a secondary process and the only likely explanation offered is that of Rolleston, that owing to their extreme narrowness at birth they are easily destroyed by catarrhal and other inflammation, just as stenosis of the larynx is found more commonly in children from a similar cause. In adults the causes of cholangitis are the presence of calculi and perhaps of typhoid bacilli. Indeed, the formation of calculi is referred by some writers to the presence of an infective agent leading to chronic catarrhal changes. Calculi are exceedingly rare in infants; only about eight have been placed on record. It would seem, therefore, that we must reject as causes either developmental failure or calculous obstruction, and recognise an inflammatory process occurring either in fœtal life or afterwards affecting the liver, the ducts, and the bile itself in varying degrees; and bearing in mind the presence of multilobular changes in some patients at least, there is evidence in favour rather of a descending infection than of one ascending the bile-ducts. The obliteration of the ducts is a later symptom due in part to mechanical factors.

We may now turn to another line of argument. The cirrhosis is largely of the monolobular or biliary type, though more or less mixed with the multilobular. What, then, is the cause of biliary cirrhosis? The best known class of cases is that known under the name of Hanot, which is usually regarded as infective in origin. Of late much evidence has been brought forward to show that some form of cirrhosis may be due to obstruction of the ducts. Cheadle, indeed, says that in the majority of cases of obstructive jaundice no cirrhosis follows,[1] but Vaughan Harley and others have shown by experiments on animals that in them biliary cirrhosis can be produced by ligature identical anatomically with that seen in Hanot's form. Mangelsdorff in 1882 collected 184 cases in man of cirrhosis with duct obstruction and even argued that any form of cirrhosis might accompany this condition. Ford, reviewing the whole subject in the present year,[2] found 24 additional cases and includes several of these congenital ones, though he omits alcoholic and syphilitic cases and those due to well-known poisons. He regards it as now certain that in animals a damming back of the bile leads of itself to cirrhosis, while in man cirrhosis also follows on obstruction, but this is due in part to the inflammatory conditions which are always present. The cirrhosis, moreover, cannot be anatomically differentiated from that seen in Hanot's type, but the general symptoms accompanying it are totally different.

Now in this patient and others the general clinical picture is much more like that of Hanot's type than that which Ford finds in cirrhosis due to obstruction. Ford, indeed, rather strangely reckons these congenital cases among his instances of obstructive cirrhosis in spite of his own teaching, perhaps from grouping them with the few instances of calculi recorded. Thus, in obstruction he points out that the course of the disease is acute, with rapid loss of flesh and symptoms of portal obstruction. Yet in this patient and others like him the course of the disease was chronic, without much emaciation or loss of appetite. There were no enlarged abdominal veins, or œdema, or, until the final stage when nephritis had set in, any ascites. Indeed, but for the kidney poisoning there seemed no reason why he should not have lived a considerable time in fair health. Thomson remarks that the interference with the general nutrition is usually much less than might be expected and that ascites is only occasional in congenital disease. Of course, as obliteration of the ducts is added to the cirrhosis at a later stage we get absolute exclusion of the bile from the bowel without any intermission of symptoms and finally a fatal termination, while in the adults suffering from Hanot's disease there are intermissions. On the whole, then, we have in some of these cases at least a complete picture of hypertrophic biliary cirrhosis only different from that seen in adults by the results of a secondary obliteration of the bile-ducts. What the poison or infection is which leads to it is by no means certain. The gastro-intestinal disturbances in the parent during pregnancy occasionally noted may point to the source of the mischief as Rolleston suggests, but until we know the cause of the much-debated biliary forms of cirrhosis no conclusion is possible.

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INUNCTION *v.* INTRA-MUSCULAR INJECTION IN THE TREATMENT OF SYPHILIS.

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A COMPARISON of the different methods of treating syphilis is difficult owing to the length of time during which it is necessary for patients to be under observation. The present

[1] Lumleian Lectures, 1900.
[2] American Journal of the Medical Sciences, January, 1901.

contribution, although necessarily imperfect, may be of some value as it deals with 69 cases which were under my continuous observation while I was resident medical officer at the London Lock Hospital, most of them for more than a year. Of the patients in these 69 cases 37 were treated by intra-muscular injection and 32 by inunction during the active symptoms of secondary syphilis. When the active symptoms had cleared up the patients were put on a course of pills—as a rule, two grains of blue pill twice daily. The method of intra-muscular injection employed was that introduced by Mr. J. A. Bloxam some time ago and still employed by him. Ten minims of a solution of sal alembroth, containing one-third of a grain of the salt, are injected by means of a platinum-iridium needle deeply into the muscles of the buttocks. The injections are performed once a week into alternate buttocks. The inunction was done with unguentum cinereum, consisting of one part of mercury, one part of lanolin, and half a part of olive oil. About half a drachm of this is rubbed daily into different parts of the body. The rubbing lasts 20 minutes. A warm bath is taken before each inunction.

As to the results of the treatment, by referring to the table it will be seen that there were 16 relapses of the disease during or after treatment by intra-muscular injection, including no less than four cases of severe iritis and one case of early tertiary syphilis. On the other hand, out of the 32 cases treated by inunction there were only seven relapses (two of which were doubtful) and only one case of iritis. Considering that nearly all of these cases were under observation in hospital for a year or more I think that it is justifiable to draw the conclusion that relapses are twice as frequent with the injection treatment as with the inunction method. This view is supported by observations on several hundreds of cases which were observed for shorter periods.

The advantages claimed for injection are secrecy, cleanliness, uniformity of dose, and that it is performed by the surgeon himself; the disadvantages of inunction are its irksomeness and dirtiness. I think, however, that inunction is the more reliable method of the two and that it is the best where rapid mercurialisation is required, as in cases of iritis. The great objection to the intra-muscular injection of perchloride of mercury is the pain caused by it, which is often considerable. Injections of sozoiodol of mercury or of Lang's gray oil are said to be less painful. I have had no experience of these. In treating relapsing syphilis the biniodide of mercury seems the most useful drug.

TABLE OF CASES OF SYPHILIS TREATED BY INJECTION AND INUNCTION RESPECTIVELY.

Case.	Time under observation.	Treatment.	Relapses.	Remarks.
		Injection.		
1	November, 1896, to January, 1898.	5 injections, 3 months pills.	Iritis in eighth month during treatment.	Cured by inunction and biniodide.
2	November, 1896, to November, 1897.	6 injections, 3 months pills.	Iritis in sixth month after temporary omission of mercury.	—
3	October, 1896, to September, 1898.	9 injections, 4 months pills.	Tertiary ulceration in eighteenth month.	—
4	December, 1896, to December, 1897.	4 injections, 3 months pills.	Severe iritis in seventh month, one month after temporary omission of mercury.	Cured by inunction and biniodide.
5	January, 1897, to November, 1897.	6 injections, 1 month pills.	Glossitis and ulcerated throat.	Cured by Donovan's solution and pills of mercury with iron.
6	April, 1897, to July, 1898.	5 injections, biniodide	Nodes on tibia.	—
7	July, 1897, to July, 1898.	6 injections, pills.	Relapsing condylomata.	—
8	May, 1897, to October, 1898.	Several injections and pills.	Circinate syphilide.	Cured by salicylate of mercury pills.
9	September, 1897, to October, 1898.	Several injections.	Circinate syphilide.	Cured by salicylate of mercury pills.
10	January, 1897, to February, 1898.	4 injections and pills.	Erosion of tongue.	—
11	April, 1897, to July, 1897.	4 injections.	Recurrent squamous syphilide and leucoplakia of tongue.	Cured by biniodide.
12	December, 1896, to April, 1897.	6 injections.	Iritis and synovitis.	Cured by inunction and Donovan's solution.
13	April, 1897, to January, 1898.	6 injections and biniodide.	Recurrent condylomata.	—
14	June to August, 1897.	6 injections.	Lesions did not clear up.	Cured by biniodide.
15	June to September, 1897.	8 injections.	Circinate syphilide.	,,
16	June, 1897, to October, 1898.	6 injections, pills, and biniodide.	Relapsing circinate syphilide.	Cured by salicylate of mercury pills.
17-37	A year or more.	From 3 to 14 injections (average 6) followed by pills.	*Nil.*	—
		Inunction.		
1	February, 1897, to July, 1898.	10 weeks inunction and pills.	Iritis in fifth month.	Cured by inunction and biniodide.
2	June, 1897, to September, 1898.	4 weeks inunction and pills.	Synovitis of knees.	—
3	September, 1896, to November, 1897.	4 months inunction, 2 months pills.	Erosion of tongue.	—
4	September, 1896, to January, 1898.	5 months inunction, 3 months pills.	Laryngitis.	Cured by biniodide.
5	April, 1896, to June, 1897.	4 months inunction, 6 months pills.	? Syphilitic teno-synovitis.	—
6	May, 1896, to October, 1897.	5 months inunction, 2 months pills.	Relapsing ulceration of throat	—
7	July, 1896, to August, 1897.	3 months inunction, 6 months pills.	? Syphilitic synovitis.	—
8-32	A year or more.	Inunction for from 1 to 6 months (usually 2 or 3 months), followed by pills.	*Nil.*	—

Finsbury-square, E.C.

AN EPIDEMIC OF CATARRHAL JAUNDICE PROBABLY DUE TO THE ENTERIC FEVER BACILLUS.

BY J. W. DALGLIESH, M.D. DURH., M.R.C.S. ENG., L.R.C.P. LOND.

DURING this last summer and autumn there has been a great epidemic of jaundice in Bloemfontein. I myself have treated over 100 cases. The occurrence of several hundred cases of this disease in a small town in several months is a curious and serious thing and one well worthy of our thought and investigation as to its etiology. At the same time there has raged an epidemic of enteric fever, but not worse than what occurs every summer and autumn after the rains. There has been, in addition, a very great amount of serious acute dysentery. This is quite a new feature in the medical history of Bloemfontein. It followed the British occupation and was undoubtedly brought by the troops. These three diseases, then—enteric fever, dysentery, and jaundice—have raged here for months. They have risen and fallen together. The outbreak of enteric fever was later than usual in starting last summer because the rains were late, and enteric fever always follows the rains. As it and dysentery increased so did jaundice. Towards the end of October cases began to occur, but there were not many until the end of the year, when the epidemic of these three diseases commenced in earnest. Increasing steadily every month it reached its height during April and May, when the number of cases of these three diseases was enormous. Then, during June, the epidemic rapidly subsided. The weather had then for some time been very dry and very cold and bracing.

This epidemic of jaundice is quite a new feature in Bloemfontein. Before the war, during my six years' residence in this town, I did not see any more jaundice than I saw during my six years' practice in Newcastle-on-Tyne. Jaundice has now attacked all sorts and conditions of people. It has occurred in the drunkard, in the moderate drinker, and in the abstainer, in those who were careful and in those who were careless as regards their food; in those who had good houses and good food and in those who were badly housed and badly fed; in those who were able to obtain plenty of fresh foodstuffs, fresh milk, vegetables, and fruit, and in those who were obliged to live on tinned foods; in those who had permits to leave the town and who indulged in horse and other exercises every day on the veldt and in those who were closely confined to town and could obtain neither fresh air nor exercise; in those who were overworked and worried and in those who were not troubled in that way; in those who had good teeth, clean mouths, and good digestion, and in those who had the reverse; in those who were constipated and in those who were not; in the new comer and in the old resident; in the rich and in the poor, in the clean and in the unclean, in the well fed and in the starved. The only thing common to all was the insanitary state of the town and the presence of a vast amount of enteric fever and dysentery. Living in a small town closely surrounded by large hospitals, camps, remount depôts, refugee camps, and immense droves of cattle and sheep and horses, with the soil contaminated with many years of filth and disease, with the air full of clouds of dust, with no water that was safe to drink until it was boiled, with fresh fruit and vegetables and other things at times unobtainable unless one had one's own garden, and with all the depressing conditions associated with a long war, it is not to be wondered at that there was much sickness. Every summer and autumn there is an epidemic of enteric fever; last summer this was reinforced by dysentery and this year by jaundice.

I have already said that this epidemic wave of jaundice rose to its height and fell with that of enteric fever and that of dysentery, but it was also mingled with them in other ways. As examples I may say that a father had jaundice while his son and his daughter had enteric fever; a husband had enteric fever while his wife had jaundice; one brother had enteric fever while another brother had jaundice and a sister had dysentery; and a mother had jaundice while her child had enteric fever. In a large boarding-house during three months seven cases of jaundice, five cases of enteric fever, and three cases of dysentery occurred. I could find numerous other instances, but the above will suffice. The jaundice occurred most in those classes who suffer most from enteric fever. The young unmarried men from home, coming out to appointments and living in hotels and boarding houses, were the greatest sufferers from enteric fever and afterwards, I may add, from dysentery. They also supplied the greatest number of cases of jaundice. The married men suffered infinitely less from enteric fever from the greater care they experienced in cooking and in food and water, and they also suffered very much less from jaundice. Females have never suffered much from enteric fever owing to their drinking tea, which means boiled water, and they only supplied a few cases of jaundice. Children here do not often have enteric fever and then usually in a mild form—I have not yet seen a child with jaundice. In addition, I wish to add that two men who were convalescent from severe enteric fever developed jaundice, and that I have seen three cases of cholecystitis which is certainly a rare disease.

There has been nothing specially to note about the jaundice. It has crept on gradually, as enteric fever often does. I say "often" advisedly, for enteric fever very frequently comes on acutely in this country. The jaundice commences with dull headache, languor, depression of heart and nervous system, epigastric pain, tenderness over the gall-bladder, nausea, vomiting, furred tongue, and complete absence of fever. Patients who were at once sent to bed, and kept there, blistered, starved, and purged, recovered most quickly; and those who struggled about soon found out that they must submit to the same *régime*. Another fact is that gastritis, without obvious cause, has been for some time very frequent here Sometimes it passed off, leaving the patient very weak; sometimes it has gone on to jaundice; and sometimes ultimately the patient has developed typical enteric fever.

Now, what has been the cause of all this jaundice? It will be readily seen by those who read this communication that I think that it is due to the germ of enteric fever or its toxin, but in what manner I do not know. Is it a mild enteric affection causing gastritis and cholangitis? I think it is; that is the impression I have received in the midst of a large and busy practice. I think that it is a subject well worthy of attention and elucidation by anyone who has the skill and the time to do it, and I write these lines in the hope that someone may be found to do it and also in the hope that some others practising in this colony may be led to give their experience, for I believe that the jaundice has not been confined to Bloemfontein. I think, also, that the Royal Army Medical Corps reports might be interesting. There has been a considerable amount of jaundice amongst the troops.

Bloemfontein.

MEAT ALBUMIN DIETARY IN THE TREATMENT OF TUBERCULOSIS.[1]

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SUCCESS in the treatment of tuberculous conditions, whatever may be the method for the time being which is most generally approved by competent authorities, must necessarily depend in great part on the problem of diet in this disease. Particularly is this so with cases of pulmonary tuberculosis in which defective alimentation is the most troublesome factor of the disease to be dealt with. Defective alimentation may be understood, for all practical purposes, to be governed, on the one hand by the digestive and assimilative powers of the sufferers, and on the other hand to be dependent on the easy digestibility of the food substances exhibited—that is, calculating the amount and quality of nutriment derived from the particular food by comparison with the amount of digestive effort expended and its ultimate nutritive value and power of producing

[1] A paper read before the British Medical Association, Medicine Section (by consent of the President of the section), on August 2nd, 1901.

stable nutrition when finally assimilated. The problem presented by the digestive and assimilative powers of consumptive patients is perhaps one of the most complex and difficult which the physician is called upon to face in the daily routine of practical medicine. It is just those very articles of every-day dietary, of tried and proved food-value, which, owing to the peculiar circumstances of a consumptive person, are most difficult and trying for his deranged digestive system to deal with even in only a partially complete manner. The ingestion of ordinary food, such as meat, vegetables, fats, &c., and the effort to extract from them their constituent proteids, carbohydrates, &c., in such a manner as to derive benefit therefrom, are often beyond the strength of the patient's naturally defective powers and more frequently cause a tax upon his or her energies which the small amount of nutriment derived is unable to compensate. Almost any rational line of treatment adopted will prove satisfactory and equal to the demands made upon it, provided that the digestion of the sufferer is good and remains so. When digestive powers begin to give out—which will almost inevitably happen in the vast majority of cases—then the fight to make any progress which may be called favourable begins in grim earnest.

The above amply accounts for the successes, failures, and general inequalities of results obtained under any of the well-known methods of treating phthisis. Nothing more exhausting and distressing can be well conceived than a continuous effort to derive nutriment from food, unsuitable in quality and quantity, under circumstances of deranged functions and irritative and morbid conditions of the digestive apparatus. Energy is uselessly expended in a stupendous endeavour to extract an amount of benefit miserably incommensurate with the effort and with a result which would only count as a minimum under more favourable conditions. Comprised in the term "digestive power" is the ability of the nervous mechanism of the pulmonary-gastric chain to resist the mutually reciprocal stimuli which the various processes in the one set of organs excite in the other set and *vice versâ*. Marked additional gastric effort, especially accompanied by diminished digestive power as the result of functional or irritative morbid conditions, made more profoundly disturbing by these very conditions, tends to call into action the pulmonary reflexes—i.e., cough. This last if in itself sufficiently aggravated reacts on the gastric reflex and leads to the manifestation of vomiting, and thus we here have set up a vicious cycle, ending in inability to retain food. As the ultimate result the general nutrition of the patient rapidly fails, his or her powers of resistance to the disease are gravely diminished, and the disease makes swift and devastating progress towards an unfavourable termination.

As proof of the above contention that the easy excitability is due to loss of power, and that the deranged and irritable reflexes require strengthening, the benefit to be derived from small doses of a nerve stimulant such as strychnine, over and above a sedative such as opium, is well known and appreciated. The assimilative powers can be understood to embrace not only the ability to take up and absorb nutriment, but to fix it in the organism, and having done so to be able to retain and keep it in that condition of potential stability and fixation. The stability of the assimilated matter taken up into the organism depends much on the inherent kind and quality of the food exhibited. A good instance of this is shown by the contrast in the behaviour of milk or casein albumin, and meat albumin or myosin albumin[2] as articles of diet in consumptive cases. Milk or casein albumin, where the gastronomic peculiarities of casein albumin can be borne, is taken up with very moderate rapidity, and benefit is obvious only after comparatively large quantities have been consumed. On the other hand, the beneficial results of the assimilation of milk albumin are rapidly dissipated under unfavourable conditions. Meat albumin, on the contrary, quickly and readily manifests its better qualities in the early observable improvement in the sufferer, and the benefit so obtained is not so easily undone as in the case of casein albumin.

Whatever the benefits manifested in the young by a milk diet, the circumstances do not altogether hold good for the adult, and especially an adult needing the utmost possible assistance from food specially adapted for the needs of adult life, which is the case with a consumptive person. Muscularity is the feature of the adult, therefore the proteid of muscle-food is more nearly adapted to the exigencies of that condition of life than the peculiarly adapted food of the infant in whom muscularity is not the predominant note of development. The above can be easily proved by anyone taking the trouble to weigh tuberculous patients fed on either diet mainly. Whether this is due to the fact that the casein albumin of milk is an excreted or excretory albumin and that the albumin of muscle is a fixed and more highly-elaborated and differentiated albumin, or that the marked deficiency of albuminoid-iron in the casein albumin accounts for the superiority of the iron-carrying muscle albumin, has not yet been satisfactorily settled. Any benefits accruing from the ingestion of milk albumin can be easily assisted and their stability enhanced and safeguarded by the admixture and addition thereto of the albumins of meat with their many and various good qualities. Further, the resistant and combative forces of the patient to the ravages of the disease seem to be more markedly increased and fortified under a diet of meat albumin, or mixed meat and milk albumin, than under milk alone.

Personal practical experience of the results of feeding consumptive patients tends strongly to confirm the experience of others. Meat albumin or myosin albumin can be used either in a cooked state or as a raw meat-juice prepared from fresh meat and used immediately after preparation. It can be made either by mincing the meat and expressing it, or by the cold extraction process with saline solution.[3] This last can either be used alone as it is or it can be flavoured with port wine, spices, &c. Commercial raw meat-juice preparations on the market possess no advantage over the home-made raw meat extract, and have the additional disadvantage of containing only a small percentage of actual albumin; they are most expensive, and must necessarily be highly charged with chemical preservatives of more or less harmful nature. All the above methods of administering raw meat-juice, home-made and commercial, run the risk of conveying tubercle bacilli from the meat from which they are made; and the meat juices of foreign origin may also contain the spores of anthrax bacilli if they are made from meat where the cattle are subject to that disease. On the other hand meat albumin can be also utilised in a coagulated or cooked condition,[4] and apparently with just as great benefit, judging from practical results. From elaborate experiments made by myself it can be easily and safely put up in tins and sterilised ready for use at very small expenditure.

Héricourt and Richet's[5] researches and experiments with raw meat on tuberculous dogs induce them to attach some importance to the rawness of the meat, its action supposedly being due to a somato-antitoxin existing normally in muscle plasma or serum; actually the reason may really be that more albuminoid nutriment was forthcoming for less digestive effort. Perhaps the contention that muscle serum possesses antitoxic influences has some foundation in fact, as persons of well-marked muscular development are known to be less liable to consumption than others not so well developed muscularly. Consumptive patients of good muscular physique do better than those who are not so fortunate. Finally, in cases of profound tuberculosis such as the tuberculous infection of a large serous cavity as the pleura or peritoneum, the patients, however well developed muscularly, seem to lose their muscular tissue at a rate out of all proportion to that occurring in other diseases. This may be that the muscular tissue is used up in a vain attempt at combating the tuberculous poison. Djvorak[6] and Webber[7] speak well of, and recommend, a meat diet strongly in the treatment of phthisis.

At the present time in my wards in H.M. Guards' Hospital, London, is a well-marked case of tubercle of the right apex in a man who began to go down-hill rapidly and to lose weight and become anæmic, with cough and loss of all appetite, under ordinary diet with much milk. He was put upon the albumin made from two pounds of good steak daily and now after three weeks is so much better that all active subjective and

[2] Forbes Ross: Meat Preparations: The Possibilities of Myosin Albumin, THE LANCET, June 22nd, 1901, p. 1757.

[3] Forbes Ross: Diet in Heart Failure in the Aged, Brit. Med. Jour., Oct. 13th, 1900.

[4] Loc. cit., and Intestinal Intoxication in Infants, Forbes Ross (Rebman, London, 1897).

[5] Bulletin de l'Académie de Médecine, Paris, Nov. 28th, 1899.

[6] Bericht über den Kongress zur Bekämpfung der Tuberculose, Berlin, 1899, p. 619.

[7] Meat in Pulmonary Tuberculosis, Zeitschrift für Tuberculose und Heilstättenwesen, 1900.

objective symptoms have ceased and he expresses himself as feeling quite well. His condition is rapidly approaching the stage known as "arrest."[9]

About five months ago I withdrew from the right pleural cavity of another man three and a half imperial pints of fluid containing tubercle bacilli (Ziel-Nielssen, Honsell). After paracentesis he was placed on full diet and the right chest was painted with iodine, but this case became one of dry tuberculous pleurisy, spoken of so unfavourably by Maguire.[9] The patient rapidly ran down, and became emaciated, weak, and anæmic. He was now put on the albumin from one pound of meat daily, was sent into the country, and returned after three months with a gain in weight of two stones, ruddy, feeling well, and with what was more important his right pleura apparently well, but thickened. This is undoubtedly another case of "arrest"[10] under meat albumin.

A case of malaria with a specific taint and beginning tubercle of the lung, though doing extremely badly with a most generous diet and appropriate treatment, yet is now, under meat albumin, as the patient expresses it, "a different man." Another striking case was one published in THE LANCET by Dr. Fletcher Little and myself[11] which did wonderfully well with meat albumin and open-air treatment combined. This particular patient had done badly in South Africa, whither he had been sent for cure, but returned much worse with tuberculous laryngitis; yet in two months he had so far recovered as to furnish a case of "arrest."

The assimilative powers of a consumptive patient are in direct ratio to the relative efficiency of the vital functions of his organism—e.g., adequate oxygenation of blood leads to increased power of tissue storage and metabolism with withdrawal of pabulum from the blood-stream; this in its turn leads to renewed demand for nutrient matter to replace that withdrawn, which is met by increased digestive effort of healthier tone. The success of the open-air or fresh-air treatment of consumption is the fact that digestion being improved and appetite sharpened the patient is able to partake of just those articles of food which tend to provide him with nourishment best suited to his needs in return for the increased power of dealing with them.

The above factors produced the survival of the "high altitude" treatment, "change of air," and in a less degree, owing to lack of adequate food, the "long sea voyage" on a sailing vessel. If it be our duty to the consumptive breadearner[12] to provide him with sanatoria for the open-air treatment of phthisis, it also behoves us to endeavour to furnish him with easily assimilated foods within the reach of his pocket. No matter what method of treatment be found most successful medicinally, the factor of diet will ever remain paramount and essential to that method. Myosin albumin returns a maximum of nutrient for a minimum of effort, peptonises rapidly and is promptly absorbed, throwing little or no stress and irritating over-action on the stomach. When combined with fresh milk or stimulant extractives, it helps to ensure a highly nutritious food and leaves additional power and spare energy for such valuable adjuvants to the dietary as extract of malt, cod-liver oil bone marrow, hypophosphites, &c.

Gower-street, W.C.

THE CONDITION OF THE BLOOD IN SCARLET FEVER.

BY F. PERCIVAL MACKIE, M.R.C.S. ENG., L.R.C.P. LOND.,

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As the result of the examination of 25 cases of scarlet fever of different degrees of severity and at different stages the following conclusions have been arrived at.

Moderate anæmia was a constant feature. In half the cases the red cells numbered between 3,500,000 and 4,000,000 per cubic millimetre. The highest count was 4,170,000 per centimetre. The percentage of hæmoglobin was in direct ratio to the number of red cells, so that the individual corpuscular richness kept very nearly normal. All the cases were accompanied by leucocytosis to a pathological degree—that is, over 10,000 per cubic millimetre. This leucocytosis seems to bear no direct ratio to the temperature but varies rather with the severity of the throat lesion and to a less extent with that of the rash. In most cases the increase of leucocytes began about 24 hours after the appearance of the rash and reached a maximum after the subsidence of the general symptoms, and at times varying in different cases from the third to the tenth day. Mild cases show a maximum increase about the fourth day after the appearance of the rash, and therefore generally not less than 24 hours after the complete disappearance of the rash. In the presence of septic complications the duration and intensity of leucocytosis naturally depends upon the intensity and duration of such complications. In anginal cases the leucocytosis may be very high (it was 95,300 per centimetre in one case), and in the one fatal case it diminished as the disease became more severe. This seems analogous with the blood condition in pneumonia, where a decrease of leucocytes in a severe case is looked upon as a bad sign. Percentage enumeration of white corpuscles was only carried out in a few instances, but in these the chief increase was in the polymorpho-nuclear variety and in several cases increase of eosinophile cells was present (5 per cent. or 6 per cent.).

The above conclusions, though not made on a very large number of cases, are very much in accord with those arrived at by other observers. Thus Hayem[1] states that about 1,000,000 red corpuscles are lost per cubic millimetre during an attack of scarlet fever. The diminution is most marked about 24 hours after the fall of the temperature. Kolschethoff[2] finds that there is a gradual diminution of red cells to about 3,000,000 per cubic millimetre, regeneration taking place slowly and not being complete till about the sixth week. Felsenthal[3] on the evidence of a few cases found no variation in the red cells. Zappert[4] gives 4,150,000 per centimetre as the average number of coloured corpuscles. Hayem[5] found that the hæmoglobin diminished in direct ratio to the red cells. As regards the question of leucocytosis Cabot states that the increase may be noticed as long as six days before the rash appears, and that it attains a maximum two or three days after the eruption of the rash. It persists for several days after the temperature has fallen to normal and with this remark Limbeck also agrees. The average leucocytosis is given as between 18,000 and 30,000 per cubic millimetre. Cabot sums up the question by saying: "In general the severest cases are apt to have the highest leucocyte count; the figures have no direct relation to the amount of fever, glandular enlargement, or complications in the ear or kidney." In reference to the percentage enumeration of white cells Kanthack found that the chief increase was of the multinuclear forms (that is, the polymorpho-nuclear). Cabot finds the same and also says that the lymphocytes—presumably also the large mononuclear—are decreased. An increase of eosinophile cells is noted to 6 per cent. or 8 per cent., and even in one case to 15 per cent. (Kanthack), and this has been used as a prognostic sign, it being stated that such increase, except at the commencement of the disease, is a bad sign.

These observations, as far as they go, tend to bring the question of leucocytosis in scarlet fever into line with that found in some other diseases, notably in pneumonia; and speaking in general terms it seems that this increase is a favourable sign and perhaps bears some near relation to the questions of natural protection, crisis, and acquired immunity. Conversely, a deficiency or absence of leucocytosis in a clinically severe case is of bad import and the same may be said of a sudden or rapid drop in a case of increasing severity. Further, as far as our experience goes, the sign is of value in indicating the presence of septic complication, such as deep-seated suppuration in the neck or obscure middle-ear disease, particularly as neither of these conditions is infallibly revealed by the temperature chart. The moderate leucocytosis in simple adenitis—from 20,000 to 30,000 per centimetre—is increased to from 40,000 to 60,000 per

[9] C. Theodore Williams: The Arrest of Pulmonary Tuberculosis, Brit. Med. Jour., July 6th, 1901.
[9] Harveian Lectures, Prognosis and Treatment in Pulmonary Tuberculosis, THE LANCET, Dec. 8th, 1900.
[10] Loc. cit.
[11] The Open-air Treatment of Phthisis, THE LANCET, Dec. 1st, 1900, p. 1567.
[12] Sir J. Burdon-Sanderson: Our Duty to the Consumptive Breadearner. Brit. Med. Jour., July 6th, 1901, p. 4.

[1] Petersburger Medicinische Wochenschrift, 1892, vol. i., p. 914 (quoted in Cole's Diseases of the Blood, 1898, and Cabot's Clinical Examination of the Blood).
[2] Ibid.
[3] Archiv für Kinderheilkunde, 1892, p. 80.
[4] Zeitschrift für Klinische Medicin, 1893, p. 292.
[5] Ibid

centimetre when suppuration takes place, and this sign may therefore be used to indicate operation, as has been claimed in the case of appendicitis. The condition of the throat has an important bearing on the degree of leucocytosis, but as long as the discharge is free the increase of leucocytes is not excessive. Measles can be readily distinguished from scarlet fever, as it is one of the few febrile diseases where there is no leucocytosis. Contrary to the experience of Cabot I found no leucocytosis until the rash had been out for about 24 hours; the statement of his about there being leucocytosis six days before the eruption is difficult to understand, as in most cases that would be before the child was even exposed to infection.

That the chief increase should be in the polymorpho-nuclear variety is only what one would expect, but the increase of the eosinophile variety is interesting. Those who believe that the coarsely granular eosinophile cell has to do with the production of antitoxin will find their theory substantiated, though unfortunately it does not hold good in other diseases where antitoxins are produced. It seems rather that the eosinophile cells have some relation to skin conditions, as in many skin diseases they are much increased, and if this is the case the greater number should be found in those cases which present the most intense and lasting rash, but neither on this point nor on the question of leucocytosis in relation to acute nephritis have I been able to collect any evidence.

Addendum, June, 1901.—The finding a deficiency of red blood cells is not surprising, as everyone who has been brought into contact with patients convalescent from scarlet fever notices the frequency of anæmia. It is scarcely necessary to add that this fact establishes as a rational one the custom of administering to all children one of the iron-containing syrups—with the possible exception of those who have had arthritic complications.

Bristol.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

BACTERICIDAL EFFECT OF THE BLOOD OF NATIVES OF INDIA ON BACILLUS TYPHOSUS.

BY F. N. WINDSOR, B.SC. VICT., B.A. CANTAB., CAPTAIN, I.M.S.

(*From the Pathological Laboratory, Army Medical School, Netley.*)

THE opportunity being given by the presence at Netley of four Sikhs (invalided for wounds from West Africa) and one other native of India (an adult Bengali) I have, at Professor Wright's suggestion, investigated the bactericidal power of their blood on bacillus typhosus with a view to a possible bearing of such inquiry upon the problem of the comparative immunity of Indian native troops to typhoid fever. The method employed was that recently described by Professor Wright,[1] the details being as follows. A 24-hour old broth culture of the bacillus typhosus was employed and the number of bacteria contained in it was elicited as described in the paper above referred to. A series of dilutions of the culture were then made and a certain volume (about five cubic millimetres) of each was mixed with an equal quantity of undiluted blood serum (drawn an hour or so previously) in a capillary glass tube. After the serum had remained in contact with the culture for 24 hours at a temperature of 37° C. a comparatively large volume of sterile broth was drawn along with the contents of the tube into the mixing chamber at the upper end. The series of tubes were then incubated for 24 hours at 37° C. When the contents of the chamber remained clear the bactericidal action of the serum was assumed to be complete; when it had become turbid, incomplete. In case of doubt the inoculation of nutrient agar decided the question.

The results are shown below in tabular form and may be compared with those obtained from a similar investigation of the blood of several ordinary Europeans:—

Dilutions of Culture employed and Number of Bacilli in One Cubic Centimetre of each Dilution.

—	1 in 5. 40,000,000 in 1 cubic centimetre.	1 in 10. 20,000,000 in 1 cubic centimetre.	1 in 20. 8,000,000 in 1 cubic centimetre.	1 in 50. 4,000,000 in 1 cubic centimetre.	1 in 100. 2,000,000 in 1 cubic centimetre.	1 in 1000. 200,000 in 1 cubic centimetre.	1 in 10,000. 20,000 in 1 cubic centimetre.
Sikh, N. S.	Growth	Growth	Growth	Growth	Growth	Sterile	Sterile
,, D. S.	,,	,,	,,	,,	,,	,,	,,
,, R. S.	,,	,,	,,	,,	,,	Growth	,,
,, B. S.	,,	,,	,,	,,	,,	Sterile	,,
Bengali, S. B. ...	,,	,,	,,	Sterile	,,	,,	,,
European, E. V. A.	,,	,,	,,	Growth	,,	,,	,,
European, J. S. H.	,,	,,	,,	,,	,,	,,	,,
European, E. A. S.	,,	,,	,,	,,	Sterile	,,	,,
European, F. N. W.	,,	,,	,,	,,	Growth	Growth	,,
European, J. B. C.	,,	Sterile	Sterile	Sterile	Sterile	Sterile	,,

The agglutinative reaction was also tested in sedimentation tubes and gave a negative result with all the above sera.

From these results it would appear that as regards its action towards bacillus typhosus the blood of these five native Indians did not differ to an appreciable extent from that of an ordinary European. The interesting question as to how this action would be affected by an inoculation with typhoid vaccine cannot at present be determined.

Netley.

[1] THE LANCET, June 1st, 1901, p. 1532.

A CASE OF CYSTINURIA WITH DIAMINURIA.

BY H. A. SCHÖLBERG, M.B. LOND., AND A. E. GARROD, M.D. OXON., F.R.C.P. LOND.

THE observations recorded below have been made on a case of cystinuria in a boy, aged 12 years, an account of whose case appeared in THE LANCET of Feb. 16th, 1901, p. 470. He had been admitted to the Birmingham Children's Hospital for the removal of a cystin calculus from the bladder. We are greatly indebted to Dr. E. A. Sadler of Ashbourne for his kindness in collecting and forwarding samples of the urine and for giving us leave to publish these observations on the case. The urine was examined at different periods from Feb. 15th to April 18th, the whole time making a total of 10 days. The method employed for detecting the diamines is that known as the Udranszky-Baumann. Huppert[1] gives the details for those who may wish to use this way. The total urine passed in 24 hours was received for the following days, the results being tabulated as follows:—

Date.	Urine for 24 hours.	Diamines.
Feb. 15th—16th.	670 cubic centimetres.	Absent.
,, 16th—17th.		
,, 17th—18th.		
,, 18th—19th.	70 ,, ,,	,,
,, 19th—20th.	40 ,, ,,	,,
March 1st—2nd.	156 ,, ,,	,,
,, 2nd—3rd.	56 ,, ,,	Putrescin.*
,, 3rd—4th.	90 ,, ,,	Absent.
April 16th—17th.	160 ,, ,,	Putrescin and cadaverin.†
,, 17th—18th.	260 ,, ,,	

* The melting point was 175° to 176° C.
† The melting point was 159° to 161° C.

[1] Neubauer und Vogel: Analyse des Harns, p. 265.

It will be seen from this that on three occasions out of 10 examinations diamines were found, in one case putrescin (dibenzoyl derivative) being separated as a pure product. This is the second case recorded which has given such a result, the other being described by Garcia[2] who was examining the urine of Baumann's case recorded in the same journal in 1889. The evidence that we had separated dibenzoyl putrescin is as follows: (1) benzoylating yielded a crystalline compound having the same melting point as dibenzoyl tetra-methylene-diamine—175° to 176° C.; (2) it was insoluble in water; (3) it was soluble to a certain extent in ether and readily soluble in alcohol; (4) the platinum salt of the compound was prepared and the crystals corresponded with those of the platinum salt of putrescin. The yield was insufficient to allow of a further experiment and an ultimate organic analysis could not be done.

The results obtained with the samples dated April 16th to April 18th indicated a mixture of the two diamines putrescine and cadaverine. The melting points of the two dibenzoyl derivatives of these two compounds are 175° to 176° and 130° C. respectively, and a mixture of the two would give a lowered melting point corresponding to the proportions of the two bodies present. The melting point of the crystalline bodies separated was in both cases 159° to 161°, suggesting that we were dealing with a mixture of dibenzoyl putrescine and dibenzoyl cadaverine, the greater part of which was the putrescine derivative. Ether dissolved the greater portion of the mixture, leaving a small crystalline residue. An examination of the fæces was not made.

In conclusion, we wish to emphasise the intermittent character of the excretion of diamines and the necessity of making a repeated examination of the urinary output before deciding that these bodies are absent. We wish to express our thanks to Dr. F. W. Andrewes for allowing us to carry out this work in his laboratory.

The Pathological Laboratory, St. Bartholomew's Hospital, E.C.

MALARIAL COMA; PREMATURE DELIVERY; DEATH.

BY J. BELL, M.R.C.S. ENG., L.R.C.P. LOND.,
ACTING PRINCIPAL CIVIL MEDICAL OFFICER, HONG-KONG.

A CHINESE prisoner in about the eighth month of pregnancy was suddenly seized with a fit at Hong-Kong gaol on June 1st. When seen she was quite unconscious with contracted pupils, stertorous breathing, insensitive conjunctivæ, and a small, feeble pulse. Under the idea that she was suffering from uræmia she was transferred to the Maternity Hospital. On arrival she was much in the same condition; the temperature was 100° F. and she was quite unconscious. She passed her urine and fæces in bed, but by means of a catheter a specimen of urine was obtained; the specific gravity was 1015, it was acid, and it contained a trace of albumin. The following day she was somewhat better and she could be roused by loud shouting. The temperature was 101°; the urine contained one-sixth albumin with blood corpuscles and blood casts. The labour ended naturally, the child being dead. On the 3rd the temperature was 103°, the urine was normal, and the patient was still unconscious. A blood slide showed numerous malignant quotidian parasites. Ten grains of quinine were given hypodermically twice daily, but without any drop in the temperature or improvement in the mental condition. On the 4th the temperature was 106·8°. As the patient was evidently sinking lumbar puncture was performed, clear serum coming out of the tube which was left in for 48 hours. This, perhaps, combined with ice-packing, brought the temperature to normal at midnight. The following day the patient seemed to be much more sensible, though the temperature again rose to 104°. As the blood still showed malignant parasites in large numbers the quinine was increased to 15 grains twice daily, with iron and quinine every three hours. The patient slowly again relapsed into unconsciousness, the temperature varying between 101° and 106° till the 7th, when she died.

Necropsy.—At the post-mortem examination the heart and lungs were found to be normal save for some old adhesions at the right base. The liver was cirrhotic and weighed two and three-quarter pounds. The kidneys were normal but were much congested. The spleen weighed five ounces. The brain was soft and congested, but there was no increase in the fluid either at the base or in the ventricles. A smear obtained from the spleen teemed with parasites.

Remarks.—As these comatose forms of malaria invariably show a large increase in the cerebro-spinal fluid, lumbar puncture was tried in the hope of staving off the effects of pressure until the quinine had time to work. The result was disappointing, as also was the effect of quinine which in these comatose forms seems to be useless. In five days the patient had 145 grains hypodermically with practically no effect.

Hong-Kong.

[2] Zeitschrift für Physiologische Chemie, 1893.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

TWO CASES OF INTUSSUSCEPTION TREATED BY OPERATION; RECOVERY.

(Under the care of Mr. HERBERT W. ALLINGHAM.)

THE following two cases are good instances of the successful treatment of intussusception by laparotomy, and the best results are obtained when, as here, no previous inflation or injection has been practised. In one important point, however, these two cases differ from most other cases of laparotomy for intussusception: in both the vermiform appendix was removed. Inasmuch as shock is the chief cause of death in laparotomy for intussusception this addition to the operation is of doubtful value, and the utility of the modification is but little increased by the avoidance of possible appendicitis in the future and by the possible formation of adhesions which may tend to prevent a recurrence of the invagination. For the notes of the cases we are indebted to Mr. P. L. Mummery.

CASE 1.—A well-nourished child, aged a year and three months, was suddenly seized with acute abdominal pain at 9 A.M. on March 11th; this was followed by vomiting and diarrhœa, the stools consisting of blood and mucus. The patient had previously been quite healthy except that he had suffered from worms for some time, a worm having been passed just previously to the onset of symptoms. The child was admitted to St. George's Hospital at 4 A.M. on the 12th. The abdomen was slightly distended and tender, and a firm roundish mass could be felt extending from the right iliac fossa upwards and then across the abdomen at about the level of the umbilicus towards the left side.

The A.C.E. mixture having been administered, an incision was made about four inches long just to the right of the umbilicus and extending about an equal distance above and below it. On opening the abdomen an ileo-cæcal intussusception was found nearly a foot in length. This was reduced easily by squeezing except for the last portion which was rather adherent. The appendix (about four inches in length) was then removed by turning back a sleeve of peritoneum in the ordinary way. The wound was sewn up with fishing-gut sutures, and the dressings were fixed on by passing broad pieces of strapping completely round the body. The child was subsequently allowed to move about in bed as he liked. He was rather restless all day, but after the administration of two minims of tincture of opium he slept well all night.

On March 13th the child was sitting up playing with toys and seemed to be quite comfortable. Two drachms of castor oil having been given without effect in the morning the child was given half an ounce in the evening which resulted in two good stools during the night. The patient made an uninterrupted recovery, the stitches being removed on the sixth day. The child was allowed to sit up when he wanted to, and, in fact, did so most of the day. The wound was firmly healed on the 25th and the child left the hospital quite well on the 28th.

CASE 2.—A well-nourished child was in good health until

April 22nd, when the mother noticed that the stools were frequent and consisted for the most part of blood and slime. It vomited about the middle of the day; this continued and the child was restless and ill until admission to St. George's Hospital on the following afternoon (the 23rd). On admission the child was collapsed, with a subnormal temperature and rapid pulse; it vomited frequently and passed several stools consisting of nothing but blood and mucus. The abdomen was distended and with some difficulty a sausage-shaped mass could be felt on both sides of the abdomen. Nothing was felt on examining the rectum.

An operation was performed at 8.30 P.M. on April 23rd. Chloroform having been administered an incision about four inches long was made as in the first case. An ileo-cæcal intussusception was found involving the whole of the large intestine down to the sigmoid. The bowel was black in colour and slightly œdematous, but still shiny. It was reduced by delivering the mass and reducing it piece by piece by squeezing the intussuscipiens and drawing on the intussusceptum. The last part was rather adherent but was reduced without injury to the bowel. The appendix was then removed as in the first case and the wound was sewn up and dressed. The child stood the operation well and slept for some time afterwards. It was not weaned but was fed by the breast in the ordinary way, the first feed being given by the mother six hours after the operation.

On April 24th the child was very slightly sick after each feed during the day. The bowels acted three times unassisted, the last motion being natural in appearance. The temperature was 102° F. On the 25th the patient was better. The bowels acted slightly. Half a drachm of castor oil was administered with good effect. The temperature was normal. On the 29th the wound was dressed and superficial stitches were removed. On May 4th the remaining stitches were removed; the wound had healed. On the 11th the patient left the hospital quite well.

Remarks by Mr. MUMMERY.—In neither of the above cases was inflation attempted and in both cases it was found at the operation that such an attempt would have been quite futile. The large incision used in these cases was of great benefit as it allowed of the operation being quickly performed (neither operation took over 25 minutes), a point of the utmost importance in abdominal operations on young children. The appendix was removed in each case with a view to obtaining adhesions in the neighbourhood of the cæcum which we thought might prevent a recurrence of the trouble, while at the same time it removed an organ with unpleasant possibilities before it. Both children were allowed to move about as they liked after the operation and the second child was even taken out of its cot by its mother and put to the breast every few hours, and if this child had had to be weaned it would probably not have recovered. The child being allowed to sit up and crawl about did not appear to interfere in any way with the recovery of the bowel or the healing of the wound which in both cases was perfect.

KETTERING GENERAL HOSPITAL.

A CASE OF RUPTURE OF THE KIDNEY; EXCISION; RECOVERY.

(Under the care of Dr. DANIEL D. LEE.)

THE question of the removal of a kidney when a urinary fistula has become established must be decided partly by the risk of the operation itself, but chiefly by the functional activity of the other kidney. This should be estimated in all cases before nephrectomy is performed. In uncomplicated cases of injuries to the kidney the mortality is about 30 per cent. and when complicated cases are also included the death-rate may amount to 47 per cent. These percentages are founded on a series of 306 cases collected by Koster.[1]

A labourer, aged 19 years, was admitted into the Kettering General Hospital on Sept. 6th, 1900, 14 hours after an accident at the Kettering Furnaces, in which he was caught between two barrow loads of ironstone. When seen at the hospital he was in a state of extreme collapse. He was very restless, in great pain and distress, and passed blood copiously by the urethra. The hæmorrhage was ultimately checked, but did not cease altogether until the beginning of the third week. His condition was very grave and continued so for several days. The temperature ranged from 99° to 103° F. and the pulse was 140; there were frequent low delirium and almost incessant vomiting. At the close of the first week the cervical glands were inflamed and swollen and in the space between the last rib and the crest of the ilium an ill-defined swelling with faint fluctuation appeared. This gradually increased and could be traced from the outer border of the erector spinæ behind, almost to the middle line in front. Fluctuation became more marked and the presence of pus was suspected. Yet, notwithstanding that on three occasions a trocar was thrust deeply into the swelling, the result was negative. At the same time Dr. Lee felt convinced that he had to deal with a perinephric abscess. It should, perhaps, be mentioned that after the urine had become quite clear the quantity passed was excessive, amounting to 90 ounces in 24 hours.

On Oct. 7th it was decided to operate. Mr. J. P. Roughton gave the anæsthetic and Dr. J. Allinson and Mr. L. W. Dryland assisted. A vertical incision was made along the outer edge of the left lumbar muscles, extending from nearly the last rib to the crest of the ilium. No special difficulty was encountered in the dissection, the deeper stages of which were carried out rather by tearing with the finger and probe than by cutting, and a membrane containing fluid was reached, through which the kidney could be readily felt. The membrane was torn through freely, as was thought at the time, but only a disappointingly small quantity of foul-smelling urine escaped. Two large drainage-tubes were inserted into the cavity and were packed round with strips of cyanide gauze and the wound was dressed. The patient rallied well from the operation; on the two next days there was a considerable amount of discharge on the dressings, but on the third day they were quite dry. The vomiting meanwhile continued and the temperature and pulse showed no signs of improvement. Suspecting that the opening in the capsule was insufficient or that the tubes had either slipped out or got blocked, Dr. Lee put the patient under the A.C.E. mixture and freely lacerated the membrane with the fingers, when an astonishing quantity of urine and pus escaped. The cavity was again drained and the wound was dressed. The vomiting now entirely ceased and the patient gained flesh and strength rapidly. In fact, he was practically well except for the presence of a urinary fistula. It may be remarked that when the cavity was being flushed out on two occasions some kidney tissue came away in the discharges.

After a month's uninterrupted progress it was put to the patient whether he would be content to have a urinary fistula all his life or to have the injured kidney removed. He readily chose the latter alternative and accordingly on Nov. 18th he was put under the A.C.E. mixture, Dr. Lee's colleagues assisting as before. An incision about four inches in length was made a little below and parallel to the last rib, forming an acute angle with the upper end of the wound made in the previous operation. A triangular flap resulted, which when reflected brought the kidney well within reach. The capsule was reflected from the pedicle as far as possible and the kidney was withdrawn partially through the wound. The ureter was now sought for, but from the extremely matted condition of the pedicle it was found impossible to isolate it. It was decided to include the ureter with the blood-vessels in the same ligature. The pedicle was therefore transfixed with a stout double silk ligature and was treated exactly like an ovarian pedicle and the kidney was removed. The cavity was well plugged with cyanide gauze and the dressings were applied. The patient bore the operation well, but became very collapsed on the next day when the dressings were removed. However, after being transfused by Mr. Roughton and Mr. Dryland with normal saline solution, he rallied and subsequently made an uninterrupted progress to complete recovery. He is now, and has been for three months, back at his old work again, feeling, he says, as well as ever.

Remarks by Dr. LEE.—The only comment which I wish to make on the treatment of the case is with regard to the management of the ureter. The authorities on the subject within my reach say that the ureter ought always to be treated separately and Mr. Knowsley Thornton is quoted as advising, in addition, the suturing of the end of the ureter to the lowest part of the wound, especially, I take it, where the kidney is removed by the abdominal method. I do not know if he advises it when the operation is performed by the post-peritoneal method. That there are conditions of kidney met with, for which the operation of nephrectomy is performed, which point to the operator the wisdom of treating the ureter

[1] The Surgery of the Kidney and Ureter, by H. Morris, vol. i., p. 178.

as a separate entity I do not wish to deny, but that it is unnecessary to do so in all cases is, I think, amply demonstrated by this one. The evil results of a leaking ureter were conspicuous by their absence.

Reviews and Notices of Books.

Sexual Dimorphism in the Animal Kingdom: a Theory of the Evolution of Secondary Sexual Characters. By J. T. CUNNINGHAM, M.A., formerly Fellow of University College, Oxford. London: A. and C. Black. 1900. Pp. xi. + 317. 32 Illustrations in the text. Price 12*s.* 6*d.* net.

MR. CUNNINGHAM could hardly have selected a more important and entrancing subject upon which to write a book than a consideration of the various problems involved in what is generally called "sexual selection." So obvious is this that he need hardly have adopted so deprecatory a tone in the preface as he has thought fit to adopt. Mr. Cunningham writes: "It is true that many interesting and valuable observations have been made, but as the description of the behaviour of a living animal adds so much less to a man's reputation than an anatomical or systematic research the study of habits makes slow progress." The precise opposite appears to us to be the case. There is most unquestionably at the moment a "boom" in bionomics and a decided "slump" in purely anatomical or embryological investigation. The former is not to be regretted, but the latter to our mind is a retrograde step. The professional zoologist is apt to resemble the religious convert, he lives for half his life in crass ignorance that a certain line of work is a possibility and desirable; when he wakes up to the fact he begins by insolent denunciation of other zoologists who prefer other paths. In the palmier days of "section cutting" and "morphology" the systematist was contemptuously treated as was even the anatomist who followed the methods of Cuvier and of Owen. Now we study the influence of temperature upon development and feed birds with gaudily-coloured caterpillars. An excellent thing, too, but not to be studied to the exclusion of everything else. If Mr. Cunningham will do once again what he has doubtless often done before—walk into the central hall of the Natural History Museum—he will find bionomics to any amount and will revise the sentence in his preface to which we have referred.

The question arises in considering Mr. Cunningham's book, important and fascinating though the subject is, are there sufficient facts and inferences which have accumulated since the time when Darwin wrote "The Descent of Man" to justify a review of the subject of sexual selection? Perhaps it is easier now than it was some years ago to treat sexual selection from the point of view of destructive criticism, but it does not appear to us that a replacement of that theory is yet possible, and least of all by a theory so purely Lamarckian as that in which Mr. Cunningham believes. As to the first point such advances as we have made in the knowledge of fact seem not to have strengthened the evidence for sexual selection; but it does, as it appears to us, seem to be a fact incapable of refutation that "preferential mating" occurs in the vertebrate world. The classical instance of the latter marriage custom is, of course, "the old pied cock" of Darwin whom the hens preferred to his more attractively coloured and youthful rivals. The two theories are sometimes confounded, but the one has not necessarily anything to do with the other. They may obviously coincide; but this emphatically remains to be established. However, this attitude of mind does not really affect the position taken up by the author of the volume before us. Mr. Cunningham dwells upon the fact that sexual differences of colour and structure, other than of the parts concerned in reproduction, are the outward effects of a different mode of life and are at least often caused by direct stimulation of a special kind. To do Mr. Cunningham justice he is not in the least afraid of the inconveniently "tight" places in which the pursuit of his views at times lands him. He has in an eminent degree the courage of his opinions. In dealing, for example, with the marked differences which the two sexes of certain butterflies exhibit, he boldly leans for support upon the first of the two articles of his creed. It is a commonplace of zoology that many butterflies (and, of course, other animals) closely resemble other species of butterflies to which they are or are not closely related. In many cases this resemblance is limited to one sex, which is then most commonly the female. Mr. Cunningham instances the swallow-tail butterfly (*Laertes pammon*); this insect has two kinds of females; the females are, as it is said, "dimorphic." One kind of female imitates another swallow-tail (*Menelaides aristolochiæ*); the other a second species of the same genus (*M. hector*). The male imitates neither, but bears carelessly his own peculiar characteristics. Now it is held by the advocates of the theory of "mimicry" that the female escapes destruction by this striking likeness to the nastily-tasting *M. aristolochiæ* and its ally. They would add that it is more important that the female should be protected than the male, since upon her devolves the duty of egg-laying. When the male has once paired with his mate natural selection has no further interest in him, and does not care what becomes of him. Mr. Cunningham attacks this view in a fashion which is not without ingenuity. Why, he asks in effect, should not the male also get to be a mimic? Although it may escape by its activity, why should not it also add to its defences by an imitation of a protected *Papilio*? If selection were the only factor, then, thinks Mr. Cunningham, the male would undoubtedly be affected like his mates. "On the theory," concludes the author, "that the similarity of habits between the female and the mimicked species was the cause of the mimicry, the facts at once become intelligible; on the theory of selection they do not." Now it must be conceded that this line of criticism is most damaging to those who are convinced of the adequacy of the theory of mimicry, for the reason that according to most of that party variation is taking place in all directions. But the innate fallacy in that view, and in Mr. Cunningham's criticisms thereof, seems to us to be the assumption that variation does occur in this radiating way. Facts of breeding, and other natural facts, prove more and more conclusively every day that variation—whatever be its cause—does not proceed in every direction but along definite and circumscribed paths.

Mr. Cunningham has a wider knowledge of the facts of zoology than many who have attempted to write works of a general character like the present. But like most zoologists Mr. Cunningham is not a specialist in every group. In stating that the horned screamer (*Palamedea cornuta*) has two pairs of spurs upon the wings the author is in error; nor is he accurate in stating that the pendulous fleshy process on the head of the turkey is erected when the animal is "love-making." The "anseres" are not the only birds with two pairs of extrinsic muscles upon the trachea; there is, moreover, no family cygnidæ which can be distinguished from the other anatidæ. The latter criticism may be, perhaps, thought pedantic; but it is not pedantic to remind the author that chamæpetes does not belong "to the turkey family." Mr. Cunningham's own special knowledge relates mainly to fishes, upon which group he has published much in the way of valuable research; when he deals with this group he is more illuminating than he is at times elsewhere. It is generally quite possible to deal with philosophical speculation from a knowledge of one group only; we wish much that this plan were more usually adopted. With the critical, destructive, part of Mr. Cunningham's work we are as a rule in sympathy. He

points out, for instance, a real difficulty to the believer in selection pure and simple in treating of the specific characters of certain fishes. The plaice has red spots and smooth scales with a bony ridge behind the eyes elevated into five tubercles. The dab, on the other hand, has spiny scales, while the flounder differs from both in its small and reduced scales accompanied by other scales which are specially enlarged; and the ridge behind the eyes is smooth. How can we account for these specific differences on any theory of utility, he asks; and as in countless other cases there appears to us to be no answer possible. It would be wiser, we think, to let the matter rest here for the present, but Mr. Cunningham must have a theory, and naturally dwells upon the different kind of life led by the three species of flat fish.

Elsewhere the author is to our mind too anxious to press his views of the close relation between certain habits and concomitant structural peculiarities. To arrive at the conclusion that the complexly branched horns of deer are the result of the habit of butting each other shown by the males is too difficult of acceptance; worse still from the point of view of probability—and what other arguments are there at present?—is his opinion that the grooves on the adorned snout of the mandrill are the results of continued clawing at each other by quarrelsome males. We cannot accept his assertion that the manes of lions, the long feathers of certain birds, warts and combs, are merely due to increased growth caused by pulling and pecking at those spots. In short, while Mr. Cunningham possesses a pleasant and fluent style and has furnished us in this book with many interesting and often little known or absolutely novel points, and has attacked the standpoint of those who believe in sexual selection with much acute criticism, we cannot allow that he has replaced that theory by one which is more convincing. As he admits himself, we require more study and the accumulation of much more fact; the time has not yet come for even the most tentative generalisation.

A Text-book of Practical Obstetrics. By EGBERT H. GRANDIN, M.D., and GEORGE W. JARMAN, M.D. Third edition, revised and enlarged, with 52 full-page Photographic Plates and 105 Illustrations in the text. Philadelphia: F. A. Davis Co. 1900. Pp. 526. Price $4.00.

THIS book has reached a third edition in a comparatively short space of time. From this we may infer that it is appreciated by American students. In our notice of the second edition we pointed out what we considered some of its defects. One of the most important in a book of this character intended for ready reference is the difficulty experienced in finding any connected account of the treatment recommended for varying conditions. This is due firstly to the fact that the index is a very poor and incomplete one and no attempt seems to have been made to improve it, and secondly, to the plan adopted of relegating without adequate cross references the descriptions of the operations of obstetric surgery to the second half of the book, away from the account of the different conditions in which they may be required. We should much like to know upon what number of cases the authors base their statement that in the treatment of placenta prævia "the elective emptying of the uterus enables us to save nearly 90 per cent. of the infants instead of losing this number, as was the record of the past, and the chances of the woman's life being saved may be placed at about 98 per cent." We are surprised to find no notice at all of Champetier de Ribes's bag and the old-fashioned, we had thought obsolete, pattern of Barnes's bag figured and apparently recommended. The authors appear to consider the exceptions to Colles's law as sufficiently numerous to warrant the prohibition of nursing by a healthy mother of a congenitally syphilitic infant and the suckling of a child born without evidence of disease by its mother for fear it may become infected.

For the experienced practitioner able to pick out the good from the bad no doubt the book contains some useful information, but at any rate for the English student we do not feel that we can recommend the third edition any more than we did the second.

A Treatise on Plague: The Conditions for its Causation, Prevalence, Incidence, Immunity, Prevention, and Treatment. By Major GEORGE S. THOMSON, M.B., M.Ch., M.A.O. R.U.I., I.M.S., Bombay; and JOHN THOMSON, L.R.C.S., L.R.C.P. Irel., Special Plague Officer under the Government of Bombay. London: Swan Sonnenschein and Co., Limited. 1901. Pp. 308. Price 7*s.* 6*d.*

THIS volume, which consists of nine chapters and a few pages devoted to Pest Bibliography, after dealing with such subjects as the definition and etiology, historical retrospect, and incidence of plague, proceeds to the consideration of the relation of rats to the pest, the mode of infection in plague, and the use of chemical disinfectants, with a description of the plague epidemic in Satara city, Mr. Haffkine's prophylactic inoculation, and the reports, statistical, clinical, and otherwise, of the Parel plague hospital.

The authors, it will be seen, have a wide field and a large amount of information and material at their disposal, in addition to that which has been acquired from considerable personal experience; and from what may be termed a practical common-sense point of view they have a good deal to say which is deserving of, and commends itself to, attention.

Their treatment of the subject, while it evinces an up-to-date acquaintance with the results of scientific researches, is nevertheless not perhaps so terse and precise as could be desired. It contains a great deal of information, but it is too discursive in style and arrangement and the book does not readily lend itself to analysis and review. We take it, however, that one of the main objects aimed at being proved is made plain enough, and it may be described as something to this effect: that although a micro-organism is the origin and cause (the seed) of plague, as of some other infectious epidemic diseases, it requires a suitable soil and environment for its life, growth, and development. That, in other words, every seed or germ of disease requires, like a vegetable seed, a suitable muckheap or soil for its preservation and growth and that it is often far easier to prevent or to deal with the muckheap than with the seed itself.

"The practice of classifying diseases mainly by the micro-organisms that give rise to them confers on the germs," say the authors, "a wholly factitious and overwrought importance, has caused us to pay less regard to the secondary controllable causes, equally, if not more important. ..... In nature whatever is, is so under certain conditions, some of which are accidental, while others are essential. The difference must be carefully ascertained." The authors allege that the germ has become the dominant process in disease, and the theory overdriven has become a bar to medical progress and true preventive science. They contend that the dreaded scourge of plague can be resisted and stamped out by proper sanitary precautions alone in a sensible manner, based on the true theory of its causation. Experience has proved that the contagion of plague, when diluted with pure atmospheric air, becomes innocuous to those in close contact with the afflicted. The preventive measures are cleanliness, prevention of overcrowding, and perfect ventilation.

The unfortunate thing connected with public hygiene, however, is that whilst the principles by which we should be guided are generally recognised their application in practice

is another matter. Other considerations of a more or less prohibitive nature come in and assert themselves, and peoples—especially Eastern peoples—and governments are only too ready to run the risk of being devastated by epidemics rather than to incur the financial and other sacrifices which preventive measures entail. This is so well known that to assert it even has become a platitude. To an uneducated and conservative laity the only interest attending the discovery of a specific microbe is the hope of its immediate destruction or, failing that, the limitation of its spread by measures of quarantine; the former frequently cannot be accomplished and the latter, besides being impracticable and ineffective, often costs more than the provision and execution of obvious sanitary requirements would have done. Practically we have in the meantime to put our main reliance in the case of plague in the East on prompt evacuation of an infected house or locality and prophylactic inoculation against the disease. Without going into all the details set forth in this volume we may say, in conclusion, that this treatise on plague is written from a practical and independent standpoint and containing, as it does, a large amount of information and a record of the results of personal experience on the part of its authors is well worth reading.

Les Processus Généraux. By A. CHANTEMESSE and W. W. PODWYSSOTSKY. Vol. I. of *Pathologie Générale et Expérimentale.* Edited by C. NAUD. Illustrated. Paris: G. Carré et C. Naud. 1901. Pp. 420.

THIS volume, which deals with certain of the general processes of pathology, is the first of a series which will ultimately include all branches of the science which are concerned with what is strictly called general pathology. The volume commences with an account of the morphology of the cell and with the propagation, course, and termination of disease. It then discusses the influence of heredity on the determination of morbid processes and proceeds to a full account of the various degenerations and atrophies.

Although one of the authors—namely, Professor Podwyssotsky—has already published in the Russian language a work dealing with practically the same departments of pathology the present volume is by no means a translation. The text has been entirely rewritten and extended and the illustrations, which constitute a most important feature of the work, are nearly twice as numerous as in the Russian work of Professor Podwyssotsky. As the authors are at pains to make clear in the preface, the reader must be prepared for a more strict interpretation of the term "general processes" than is usually accepted by authors of works on general pathology. Thus they admit that they can draw no sharp distinction between the processes of life which are usually called physiological and those which are usually called pathological. Both of them represent the reaction of the organism to variations in its environment. For this reason the term "pathological physiology" might have been adopted as an alternative title for a work which deals almost as fully with physiological processes as with those which are distinctly within the borderland of pathology. A very fruitful attempt has been made to systematise the morbid processes which are dealt with in this volume according to a rational and genetic classification. The degenerations are shown to be variations of certain more or less similar types which start as simple coagulation of protoplasm (granular degeneration) and proceed through various stages of chemical disintegration until in carbohydrate degeneration (glycosuria and diabetes mellitus) we find protoplasm completely broken down into two moieties, a carbohydrate- and a nitrogen-containing half. Hyaline degeneration is considered as a precursor of amyloid degeneration and mucoid as a transitional stage between albuminoid and carbohydrate. In mucoid degeneration there is a liquefaction of albumin with a modification of its chemical composition, whereby the carbohydrate molecule, instead of being set free as in carbohydrate degeneration, is united loosely to an albuminous substance. The relationship between fatty and carbohydrate degeneration is again close, and has this common feature, that in both cases fixed albuminous bodies become transformed during life into bodies which contain no nitrogen. These two forms of degeneration frequently are associated. Although the correlation of these morbid processes is intensely interesting the authors have not allowed themselves to be carried away by merely theoretical considerations. They admit the difficulties and point out the many hiatuses which must be filled in before any classification can be complete.

Closely associated with the question of degenerative processes is the subject of the unorganised ferments of internal secretion. Obesity with diminished combustion of fat may in certain cases be associated with a deficiency of a ferment called lipase which is contained in the blood and has the power of splitting fat into a glyceride and a fatty acid. The extent to which fat can be utilised in the system (limit of utilisation or coefficient of assimilation) may be dependent on the activity or quantity of this ferment, in the same way that glycolysine (Lepine's sugar-splitting ferment) may determine the limit of utilisation of sugar. On the degree of activity of these ferments, which can be measured, it may ultimately be possible to base a more or less trustworthy prognosis in certain cases of obesity and diabetes.

In the chapter which deals with Heredity there are a number of points of extreme interest. The authors accept as established the doctrine of the transmission of acquired characteristics, both physiological (transformism) and pathological (disease). It would appear that a habit of metabolism is the essential feature which is transmitted. This may ultimately conduce to morphological variation. Lowly organisms such as bacteria, which may pass rapidly through many generations, afford the best subjects for inquiries of this kind.

The illustrations, which, as we have before mentioned, contribute in no small degree to the value of this book, are, for the most part, exact reproductions in colours of the original sections which have been prepared mostly by Professor Podwyssotsky according to the most modern and approved histological methods. As a series they are altogether superior to any other with which we are acquainted.

If the high standard of excellence which characterises this the first volume is maintained in those which are to follow this general pathology will be unparalleled as a work of reference.

LIBRARY TABLE.

Practical Hints on the Erection of Baths and Washrooms for Public Use and in Factories, &c. Illustrated. London: Messrs. Andrew and Suter. Pp. 30.—The principal object of this pamphlet is to bring into notice a patent counter-flow water-heater which has only recently been introduced into the English markets, although in Germany, where it was invented, and in the United States of America it has met with favourable acceptance for some time past. The heater consists of a small bundle of copper tubes inclosed in an iron jacket. The supply of water to be heated enters this jacket at the bottom and is controlled by a valve; a second valve admits steam, either direct from a boiler or the exhaust steam from an engine, to the bundle of inner tubes at the opposite direction to the cold supply, and this steam valve is so arranged that it cannot be opened before opening the cold-water valve. A thermometer is fitted to the supply-pipe from the heater to the bath to guide in

the regulation of the steam valve, so as to ensure the heating and maintenance of the water at any required temperature according as the steam pressure may vary in the boiler. By this means any chance of over-heating is avoided. The pamphlet illustrates a number of schemes to show how mines, factories, &c., may be fitted at a comparatively small cost with the means for the personal cleanliness of the employés, whether in large or small numbers. Without criticising the several proposals in detail it may be stated than the plans and suggestions have evidently been carefully considered with a view both to efficiency and economy. Any scheme that tends to promote the personal cleanliness of those engaged in manual labour, amidst surroundings not only of a dirty but often of an unwholesome character, is not only a matter of vital importance to the individual worker, but is a boon to the community at large. It is a matter for surprise that the necessity for suitable washing accommodation is not more generally recognised by employers. Seeing that cleanliness tends to health, the producing power of any individual must be raised or lowered as his or her health may rise above or fall below the normal standard. This fluctuation, where many hands are employed, must obviously greatly influence production. We understand that an installation has already been fixed for the Leeds Corporation and doubtless many users of steam-power will avail themselves of the opportunity to promote the comfort and well-being of those under their charge.

Walley's Practical Guide to Meat Inspection. With Illustrations. Rewritten and enlarged by STEWART STOCKMAN, M.R.C.V.S. London and Edinburgh: Young J. Pentland. 1901. Pp. 231.—That Walley's "Meat Inspection" is a work which has been fully appreciated is shown by the fact that it has reached a fourth edition. It is the accepted text-book of those whose duties involve the inspection of flesh used for food, and, indeed, it may be said to be the only trustworthy work of its kind in the English language. The method of inspection of carcasses is carefully dealt with, each individual part being taken and described in detail, and the differences are explained between the appearance of the organs of each species of animal. A chapter is devoted to the methods of preparing specimens for the microscope, including the processes of freezing, embedding, cutting, and staining sections. The appearances of diseased flesh are illustrated wherever possible, as are also the bacilli which cause tuberculosis, anthrax, swine fever, tetanus, and other affections. The chapter on Bacillary Diseases is very full and complete, as is also that on Diseases caused by Animal Parasites, and the book concludes with a chapter on Food Poisoning in Man. The fourth edition has been rewritten and brought up to date by Mr. Stockman, M.R.C.V.S., professor of pathology and lecturer on meat inspection in the Royal (Dick) Veterinary College, Edinburgh, and we can with every confidence recommend it to medical officers of health and veterinary inspectors.

JOURNALS AND MAGAZINES.

The Medical Guild Quarterly.—This, the organ of the Manchester Medical Guild, contains in its July number a most interesting article by Mr. Colin Campbell of Saddleworth. The article is headed "The Parish Doctor and Out-door Medical Relief." Mr. Campbell points out how in most places the parish medical officer works under great disabilities. He works under contract and has no stimulating competition to meet. He is often only called in as a last resource, and that, too, in the middle of a long and acute illness, a change of practitioners being made, which is unfair to both practitioners and to the patient. Often, too, the poor will not call in the parish medical officer as a private medical attendant lest they may be suspected by their neighbours of receiving parish relief. The Saddleworth system, which appears to be an excellent one, is as follows. Every registered practitioner in the district who desires it is appointed a district medical officer, "consequently there is no one parish doctor, and poor persons can obtain medical relief from any doctor they desire." The Saddleworth Guardians, acting on the principle of *obsta principiis*, grant medical relief orders before a state of destitution arrives and do not dub an honest man a pauper simply for the crime of being out of work. We commend the Saddleworth method to other unions.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. M'KENDRICK, F.R.S. Vol. XXXV. New series, Vol. XV. Part 4. July, 1901. With Plates and Figures in the text. London: Charles Griffin and Co. 1901. Price 6*s.*—This part contains the index to the thirty-fifth volume of the journal and the following articles:—1. The Natural Subdivision of the Cerebral Hemisphere, with five diagrams, by Professor G. Elliot Smith, which is an elaborate and successful effort to clear up the confusion at present existing in regard to the nature of the "pallium" which properly includes three structural elements, a ventral part or pyriform lobe, the basipallium, the marginal pallium or hippocampus, and lastly, that large dorsal cap the dorsipallium or neopallium. He goes on to say that if "we regard this term 'neopallium' as the complement of 'rhinencephalon' it will involve a new definition of the latter, which would then include the whole pyriform lobe, the whole hippocampal formation and paraterminal body, in addition to the olfactory bulb, peduncle and tubercle, and the locus perforatus." Professor Smith regards the neopallium as the *sensorium commune*, where the various sensory impulses meet and react upon one another. 2. On Professor Pearson's Contributions to Osteology, by Robert Worthington, B.A., Clare College, Cambridge. This article gives the relations of mathematics to anthropology. 3. The Effect of Thyroidectomy upon Nitrogenous Metabolism, by J. Herbert Parsons, F.R.C.S., Sharpey research scholar. The effects are shown to be slight. 4. A Case of Hereditary Brachydactyly, by T. Law Webb, M.R.C.S. Eng., with two plates. 5. Note on the Superior Tibio-fibular Joint, by S. A. Owen, Trinity College. The author describes an intra-articular lamella as existing in 70 per cent. of the specimens examined. 6. Report of a case in which there occurred an Anomalous Structure at and about the Base of the Bladder, by H. T. Thompson, Christ's College, with a woodcut. The author supposes the structure described to be the lower ends of the ducts of Müller. 7. An Anomaly of the Omohyoid, by J. Ernest Frazer, F.R.C.S. Eng. 8. Double Left Parietal Bone in a Scottish Skull, by Professor Sir William Turner. 9. Eleventh Report on Recent Teratological Literature, by Bertram C. A. Windle, F.R.S. Lastly, the number contains the Proceedings of the Anatomical Society of Great Britain and Ireland.

Annals of Ophthalmology. Vol. X., No. 2, April, 1901. Managing Editor, H. V. WURDEMANN, M.D. St. Louis, Mo., U.S.A.: Jones H. Parker. Price 18*s.* per annum. Published quarterly. — The following articles are contained in this number:—1. Exophthalmos, the result of an Osteoporosis, by P. N. K. Schwenk, M.D. Philadelphia. 2. Myosis and Ptosis resulting from a Gunshot Wound Paralysing the Cervical Sympathetic, by George C. Harlan,

M.D. Philadelphia. 3. New Test Types for Determining the Acuteness of Vision, by Edmund Landolt, M.D. Paris. 4. Evisceration without the Necessity of wearing Artificial Eyes, by J. G. Huizinga, M.D. Chicago. 5. A Series of Demonstration Lenses intended for Teaching Purposes, by Charles A. Oliver, M.D. Philadelphia. 6. The Economic Valuation of Vision, by H. V. Wurdemann, M.D. Milwaukee, Wis., with the collaboration of H. Magnus, M.D. Breslau. Lastly, the part contains abstracts by Charles May, M.D., of English and American ophthalmic literature; by Frank Allport, M.D., of English colonial literature; and by other surgeons and physicians of the ophthalmic literature of Germany, France, Italy, Spain, Portugal, Russia, Austria-Hungary, and Holland.

The *Practitioner* has for the main topics of the August number the treatment of fractures, particularly as regards the early use of massage and passive movement, and the value of Roentgen rays in the matter of fractures. Mr. H. H. Clutton's article on the Influence of X Rays on the Diagnosis and Treatment of Fractures should be read by every practitioner; it is full of sound advice with which to temper a blind faith in the indiscriminate infallibility of the rays in questions of diagnosis. Mr. Clutton concludes that for routine examination of common and uncomplicated fractures there is little to be gained from use of the rays, but that for exceptional cases of difficulty this is of paramount importance. Such use may save a patient pain and anxiety and enable a surgeon to arrive at a definite diagnosis without much manipulation. At the same time certain disadvantages are to be borne in mind, the chief of which is the ease with which fallacy arises through inexperienced interpretation of a skiagram or through too limited application of the rays when the truth can only be reached by means of photographs from several aspects. Sir William H. Bennett writes on the advantages of Massage and Early Movement and arrives at the conclusion that with ordinary discretion and average dexterity the result of the method is advantageous, the time elapsing before a patient is fit to resume his vocation being diminished at least one-third. Mr. C. H. Golding-Bird discusses the treatment of Simple Fracture, particularly as regards the question of open operation. His views are not of the extreme order and are well supported by sound argument. An article devoted to the subject of Fractures of the Upper Extremity is from Mr. J. E. Platt of Manchester. The editorial remarks upon the British Congress on Tuberculosis include some severe criticism of what is described as Professor Koch's "*coup de théâtre*." He is censured for working a "boom" and running a "sensation." The *Practitioner* does not scorn the vocabulary of less dignified and more frequent periodicals.

The *Medical Magazine* for August is largely occupied with the British Congress on Tuberculosis, which we have already dealt with too fully to permit of any useful description of the articles reproduced in the magazine. Dr. George Heaton contributes an article on Blood Examination as a Clinical Guide in Cases of Obscure Suppuration, with Cases, but does not, we think, make out a very strong case for the method which he advocates. In comparatively mild cases of appendicitis where there is for days doubt as to the presence or not of pus the blood-count seems to be of more service than in any other class of case. Leucocytosis is common to so many different conditions that the question of diagnosis must be by other means narrowed down to a small limit of doubt before blood-count helps us much. Mr. J. Foster Palmer concludes his series of articles on Modern Epidemics with some philosophical reflections upon the ultimate causes of disease in general and some worthy admonitions in respect of the "medical ideal."

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague Epidemic.—The Pasteur Institute at Kasauli.—"Epidemic Dropsy" in Calcutta.

AN increase of 457 is reported this week in the number of plague deaths throughout India, the total being 1912 as against 1455 for the week previous. The Bombay Presidency showed a rise from 1174 to 1643, the worst district being Belgaum with 467 deaths. The State of Kolhapur had 390 deaths, and Dharavi 474 deaths. Bombay city returned 106 and the State of Mysore 154 deaths, but elsewhere the mortality was unimportant.

Since its foundation last year I have had occasion to record from time to time the very favourable results which are being achieved by Major D. Semple, R.A.M.C., at the Pasteur Institute at Kasauli. No less than 286 patients have been under treatment during the past 11 months. The army has benefited very largely, as 19 British officers, one warrant officer, and 57 British soldiers have been saved a journey to Paris and have successfully gone through the treatment. Caste prejudice is being gradually broken down and the benefits of the institute are being sought for by all classes. In several instances one or two patients have come from places where five or six persons had been bitten by the same rabid dog or jackal and are now alive and well, while those who remained in their village have died from hydrophobia. Other work is also being done at the institute. Anti-typhoid serum is being prepared, and the diagnosis of typhoid and Malta fevers by the serum test is being undertaken. Quite a little school of bacteriology is being started, and several medical officers are working in the laboratory. There is still much to be done. Anti-venene ought to be turned out in comparatively large quantities instead of having to be procured from Lille at great cost. Anti-tetanic serum, again, is urgently required, but more funds are wanted to provide horses and stables. Tetanus is so very common, both amongst men as well as beasts, that immense benefits could be conferred by the establishment of a ready supply. The success of the institute not merely justifies but demands immediate support on the part of the Government.

Several series of cases which have been described under the title of "epidemic dropsy" have lately occurred in Calcutta. The symptoms consist of œdema of the legs, purpuric eruptions all over the body, fever of a mild type, intestinal catarrh, pain in the limbs and abdomen, slightly jaundiced condition of the eyes, and extreme prostration. The illness has lasted in several cases for over a month. The outbreaks have occurred in groups of families and in a girls' college. In one published case the urine was albuminous and dark red in colour and it contained blood and hyaline casts and a large excess of urates. It is said that a similar series of cases occurred in the year 1878–79 and that they are described in the report of the Calcutta Medical Society for 1880, but no special cause for the disease could at that time be made out. Many of the cases proved fatal, but no deaths this year have as yet been reported. The disease is being investigated by the health officer and by the pathologist to the Medical College Hospital, but it is somewhat premature at present to formulate any opinions.

August 3rd.

COCAINE POISONING.—At Cromer on July 24th an inquest was held on the wife of a pharmaceutical chemist, death having been caused by injections of cocaine administered with a view to the extraction of teeth. The operator was a medical student, an assistant to the deceased's husband. He prepared the solution, gave the injection, and extracted one tooth without much trouble. Deceased, who had previously had cocaine injected by a dentist without any ill-effects, insisted on having another injection for the extraction of the second tooth, and convulsions soon afterwards set in. The assistant stated that he dissolved one grain of cocaine and gave it in three injections. He had been in the habit of administering cocaine. Two medical men who were sent for found the patient comatose. Movement of the heart was hardly perceptible and breathing was very slow and laboured. The lips were livid and the pupils were dilated. Artificial respiration was used and restoratives were given, but death took place in about half an hour. No unusual appearances were found at the necropsy.

THE LANCET.

LONDON: SATURDAY, AUGUST 24, 1901.

Dr. Ravenel on Human and Bovine Tuberculosis.

AT Congresses bane and antidote flourish side by side; free expression of opinion makes for truth; and Professor KOCH said well, at the British Congress on Tuberculosis, that all he wished to get at was the truth. Had Professor KOCH's address not been given Dr. RAVENEL's paper, published in our columns,[1] valuable as it is, might have been allowed to pass without attracting the attention that it deserves, and, like other evidence hitherto brought forward in the same direction, might have been dismissed as proving what had already been proved. This would have been a great loss, for we have in it evidence of an exceedingly striking character such as is seldom collected into one paper. It is specially valuable at the present time as following up Dr. THEOBALD SMITH's work. Much of Dr. RAVENEL's work runs parallel with certain of the work reported by Professor KOCH and corroborates many of his statements based thereupon. At one point, however, diverging from Professor KOCH's conclusions, most convincing evidence is adduced to show that some fallacy must have crept into Professor KOCH's experiments, his observations, or his arguments. At the outset Dr. RAVENEL, in agreement with many other workers, comes to the conclusion that there is usually some slight difference in the morphological characters of the bovine tubercle bacillus and the human tubercle bacillus. Further, as the result of a series of well conceived and carefully executed experiments he is of opinion that the human tubercle bacillus is less virulent for most species of animals than is the bovine bacillus. In the case of pigs this general statement does not appear to hold good, as the human bacillus seems to induce death and extensive tuberculous lesions in these animals at least as early as does the bovine bacillus. There appears, however, to be little doubt that where cattle are concerned this difference is at high-water mark and that it is an exceedingly difficult matter to produce tuberculosis in cattle with the tubercle bacillus of human origin. The converse, Professor KOCH maintains, may hold good, though from Dr. RAVENEL's experiments this appears to be by no means probable; indeed, we should expect, as pointed out by several workers, that a bacillus that is pathogenic for such a large number of species as the tubercle bacillus of bovine origin, if intensified in virulence for one species would probably be intensified for the others. This, of course, does not necessarily follow, as examples are recorded of an organism becoming more virulent for one species and less so for another; but even so it is usually an easy matter for the organism to regain its virulence for a species to which for a time it appeared to be temporarily innocuous. As Professor MCFADYEAN pointed out, there is no micro-organism at present known that is pathogenic in three distinct species of animals which is not also pathogenic in man. The bovine tubercle bacillus, as we have seen, is pathogenic in a very large number of widely diverse species; it is even more pathogenic in these than is the bacillus from the human subject: we should expect, therefore, *a priori*, that it would also be more virulent for the human subject.

At present there is not much direct evidence on this point, but a few well-authenticated cases of a disease which is developed so slowly as tuberculosis, and of which the proof is so difficult, are of enormous value in this connexion, outweighing all the negative evidence that can possibly be brought forward on the opposite side. Dr. RAVENEL has three such cases in which the evidence is clear and well authenficated. He has recovered the tubercle bacillus from one case in which the inoculation was undoubtedly from a bovine subject, another of the cases succumbed to the disease, and in all three cases the veterinary surgeons engaged in handling and treating the tuberculous bovine subjects seem to have incurred inoculation wounds. No doubt in due course other cases will be recorded, but the great value of these is that they are reported at the "psychological moment" and have done more to strengthen the hands of those who are dealing with the question of the prevention of tuberculosis by paying attention to tuberculosis amongst cattle than would hundreds of cases reported at an earlier date or after interest in the subject had evaporated.

It is evident that mixed infection may play a most important part in determining an attack of tuberculosis. We know, for example, that under certain conditions the tetanus bacillus is incapable of inducing an attack of tetanus whilst under others the same organism may prove most effective, and we are gradually coming to understand the conditions under which this takes place; the presence of other septic organisms, of other comparatively innocuous organisms and even of such substances as lactic acid may be sufficient to turn the scale against the tissues and in favour of the tetanus bacillus, with the result that an attack of tetanus may be induced. The action of the erysipelas coccus may be enormously increased by the presence of such a comparatively inert organism as the bacillus prodigiosus, and it will be gathered from Professor CROOKSHANK'S experiments that a mixed infection may have had something to do with the extent and distribution of the tubercle bacillus in his experimental case of tuberculosis produced in a calf by the intra-peritoneal injection of human tuberculous sputum. As has long been pointed out, the tubercle bacillus may be present in the alimentary canal of healthy individuals without giving rise to tuberculosis. On the other hand, tuberculosis is never present without the presence of the tubercle bacillus. Going a step further, it is recognised that it is specially in children who have some disturbance of the alimentary canal that mesenteric tuberculosis is most frequently met with. In fact, the conditions necessary for the invasion of the tubercle

[1] THE LANCET, August 10th (p. 349) and 17th (p. 443), 1901.

bacillus, and even the clinical symptoms associated with tuberculosis, are frequently those of a mixed infection.

It is evidently very important that we should continue our study of the tubercle bacillus. Professor VIRCHOW and Dr. KLEIN have all along maintained that there are distinct morphological and pathogenic differences between the bovine and the human tubercle bacillus. These differences may be, and probably are, merely varietal. We can, as yet, scarcely come to the conclusion that they are specific; indeed, all the evidence yet obtained goes strongly against such a supposition. Even in the much-debated question of small-pox and vaccine, as Lord LISTER points out, Dr. COPEMAN has been able to prove that small-pox cannot be transmitted to the calf directly, but it can be transmitted to the monkey, whilst from the monkey the virus appears to be sometimes transmissible to the calf, and then in the child it produces a condition indistinguishable from that produced by vaccine matter.

As regards the appearance of a local lesion at the point of invasion, numerous experiments have been carried on with the object of determining whether this always takes place or not. DELÉPINE, SIDNEY MARTIN, SIMS WOODHEAD, MCFADYEAN, SHENNAN, STILL, and other workers in this country are satisfied that the altered lymphatic gland rather than any lesion of the free surface indicates the seat of invasion. Anyone who will make a large series of inoculations cannot but be struck by the fact that it is not the point of infection that suffers in the invasion of tuberculosis, but the nearest lymphatic gland. Even in typhoid fever, where the lymphoid tissue comes so near the surface, it is only after marked alterations in the lymphatic tissue have taken place that ulceration occurs, and there are cases of typhoid fever in which ulceration practically never ensues. Indeed, it is only because of the presence of the lymphoid tissue in the alimentary canal mucosa that a local lesion is developed—and this, it may be remarked, in a disease in which the degenerative processes go on very much more rapidly than they do in the case of tuberculosis. Most people, therefore, will be inclined to accept Dr. RAVENEL'S statement that a certain proportion of cases of infection of the alimentary canal by the tubercle bacillus gave not the slightest evidence of any local lesion at the primary seat of infection, and that those cases in which there is infection of the mesenteric glands only are probably the result of infection by the tubercle bacillus—sometimes, no doubt, the bacillus from the human subject, but in young children during the milk-taking period of their life more frequently the bacillus from a bovine source.

The matter cannot be allowed to rest. The Government authorities in Germany are apparently so thoroughly convinced of the importance of this question that they are determined to sift it to the very bottom, and it is to be hoped—although numerous enthusiastic workers will probably take up this question in order to gain information—that a Royal Commission will be appointed by our own Government to investigate the question thoroughly. Should such a commission be appointed it is very desirable that the members should be invested with full powers to carry out inquiry in all directions.

Nursing in Workhouse Infirmaries.

THE question of efficient nursing in workhouses and infirmaries is one of the highest importance, whether considered from the point of view of economy or approached on purely humanitarian grounds. Regarding the question on the lower basis, it has been stated that the detection of malingerers and the prompt and proper treatment of disease by thoroughly good nursing would probably save half the present sums expended upon the sick in-door pauper. If this statement is approximately correct it is surprising on the face of it that over 50 years had elapsed since the Local Government Board had made any reforms in workhouse nursing when on August 6th, 1897, they issued an Order the principal provisions of which were:—firstly, that no pauper inmate should be employed to perform the duties of nurse in the sick or lying-in wards; secondly, that no person should be appointed to the post of nurse or assistant nurse in the workhouse without having had such practical experience as might render her a fit person to hold such office; thirdly, that when the nursing staff consisted of three or more nurses there should be a superintendent nurse appointed; and fourthly, that it should be the duty of the master of the workhouse to engage additional nursing assistance upon receiving a requisition from the medical officer that it was required. The special attention of medical officers of workhouses should be given to this last provision, because from facts which have come to our notice it is to be feared that the valuable power placed by it in the hands of the medical officer of a workhouse has sometimes been overlooked. It is at any rate not always brought into operation when it might be.

The issue of this Order was undoubtedly largely due to the efforts of the Workhouse Infirmary Nursing Association, a voluntary association which was founded in 1879 and which has done valuable service in educating and supplying to workhouses and infirmaries some 400 properly trained nurses during the 18 years 1879 to 1897, voluntary subscriptions being collected from the public for the purpose. In the latter year the executive committee reluctantly came to the conclusion that the difficulty of providing trained nurses in adequate numbers for the workhouses in England was too great to be grappled with by voluntary effort. For instance, in 1895 the association could only supply 85 nurses in response to 199 applications from boards of guardians, and consequently it was decided that they must cease to train and to supply nurses for workhouses. Then came the issue of the Local Government Board Order to which we have referred, and undoubtedly it was a step in the right direction. The initial difficulty had been the reluctance on the part of guardians to employ properly-qualified nurses, and the issue of the Order set an official seal on the desirability of adequate nursing, and it intimated that the Local Government Board were both willing and anxious to pay some attention to the matter. But, unfortunately, the supply of nurses, on the terms offered by the guardians, has been totally inadequate, and the results, therefore, of this Order have been largely negative. It would, perhaps, have been well if the results had only been negative. Unfortunately, in the absence of an adequate supply on the terms offered, the guardians have in many

cases adopted a most pernicious system of engaging young inexperienced women under the title of "probationers" at low salaries with the promise of giving them "training." Could anything be more retrograde in the cause of good nursing or more injurious to the interests of patients, than bringing young girls into the sick wards of a workhouse without anything like systematic instruction? One of the inspectors of the Local Government Board has referred in his reports to this most serious aspect of the question. He speaks of the grave results attending the appointment as nurses of untrained women and gives examples of gross ignorance on the part of such "nurses." In one instance which he mentions a "nurse" was quite unable to take a temperature; and in another the death of a patient was attributed to incompetency to perform a duty which every trained nurse should understand. Another of the inspectors of the Local Government Board reports that "the employment of probationary nurses is on the increase, the object generally being to save expense in the way of salaries," and he speaks with disapprobation of the evils of the system at present in vogue.

An influential deputation from the Workhouse Infirmary Nursing Association waited upon the President of the Local Government Board on August 2nd, as noticed in our issue of last week[1] and pointed out the failure of the new Order to provide a proper system of nursing. It appears from the statements then made that the difficulty of obtaining trained women has increased, that many boards of guardians disregard the Order, that unqualified women are still engaged as nurses, that paupers are still employed, and that inexperienced probationers (so called) are being engaged to nurse the sick. This is not the first time by any means that the matter has been brought before the public, and we have often referred to the difficulty of obtaining a supply of trained nurses. The position is becoming more and more impossible. Nor are the causes of these difficulties far to seek. The position of nurse in the official scheme of a workhouse is not always an enviable one; the work is often uninteresting and unattractive, if not actually repellent, while the life in a country institution is dull and monotonous in the extreme. Many other extracts besides those which we have quoted from the reports of the inspectors of the Local Government Board could be given in support of the statements made by the deputation, and altogether there is a very remarkable consensus of opinion in regard to the matter. The serious defects in nursing lead to frequent cases of neglect and, as reports in the lay press reveal from time to time, to tragic consequences. As to the best method of applying a remedy considerable difference of opinion exists, but that the Poor-law nursing service, with but few exceptions, requires thorough reorganisation there can be no question. The object should be to create a permanent staff of nurses who would take a pride in the service, who would be adequately remunerated, whose position should be precisely defined, who would look forward to promotion by merit, and whose aim would be to assist the medical officers under whom they act in the alleviation of suffering, the cure of disease, and the detection of fraud.

[1] THE LANCET, August 17th, 1901, p. 499.

The main responsibility for the present condition of matters clearly lies with the authority which issued the Nursing Order of 1897. It is hardly credible, yet it is nevertheless true, that the Local Government Board, with whom rests the sanction of the appointment of nurses, are constantly approving appointments which are in direct contravention of their own Order. We have rarely met with more notable instances of official self-stultification. It clearly is the duty of the Board to enforce compliance with their own Order or at least to take the initiative in seeking for and remedying the causes of non-compliance. Many of the more enlightened boards of guardians would gladly devote the money that they now waste in advertising for nurses to the maintenance of a central training school for the supply of nurses for the service. These guardians in times past subscribed to the funds of the Workhouse Infirmary Nursing Association. How much more willingly would they do so to an organisation of the same kind having official sanction? The whole question is undoubtedly an intricate one, but the solution of it cannot be much longer postponed if further public scandal is to be avoided. The matter urgently calls for the attention of the Local Government Board upon whom the responsibility rests of seeing that a uniform and efficient system of administration obtains in the workhouse infirmaries throughout the kingdom. A small Departmental Committee should be appointed to arrive at a solution of the difficulties to which we have referred. As matters now stand there exist a waste of public money, a grave defect in the care of the sick poor, a manifest injustice to nurses, and a no less manifest injustice to their patients, the sick poor. The Government must be pressed to see things in this light.

The "Boiled Milk" Question.

THE correspondence which has recently appeared in our columns on the subject of "Unboiled *v.* Boiled Milk" furnishes an instructive object-lesson in the want of unanimity which prevails in the minds of medical men, not only as regards the fundamental principles of dietetics, but even in their special application to the uses of the mos universal of all foods.

It will not, we suppose, be seriously disputed, and we shall therefore take it for granted, that pure raw milk as it leaves the healthy gland is the most perfect form in which the maternal secretion can be administered to the offspring. We have, however, in the present controversy to consider conditions in which the maternal supply is not available, so that the issue before us practically resolves itself into two finite considerations: firstly, as to whether the dangers attendant on the use of unboiled cows' milk are, from the point of view of infection, real and substantial; and secondly, as to whether its nutritive value is seriously impaired by the usual processes of sterilisation. The first of these two questions must necessarily be approached from the widest possible standpoint, and from one which covers not only the conditions of urban and rural life but is applicable also to a large infant and invalid population. The evidence that typhoid fever, diphtheria, and scarlet fever

can be disseminated through the instrumentality of the milk-supply is overwhelming, as also is the evidence that this danger is still operative in spite of numerous reforms in the methods of distribution and administrative control. Further than this, the rôle of the streptococcus pyogenes in the determination of disease is daily assuming a phase of greater importance, because in certain bacterial company its degree of virulence in milk is believed to become greatly intensified, and because, owing to the researches of KRUGER, of GUILLEBEAU, of ESCHERICH, of ADAMITZ, and of a host of other observers, the severe diarrhœas of infancy and acute gastro-enteritis have been definitely connected with the presence of this organism.

Without entering upon the debateable question of the spread of tuberculosis by means of cows' milk it must be remembered that milk as it leaves the udder of the cow contains on the average in its mixed bacterial flora, though it is of course sterile in the gland, no less a number per cubic centimetre than 100 individual bacteria; and that as sold in the ordinary London dairy it contains something like 3,000,000 or 4,000,000 specimens. If at this point the progressive increase be not checked by some form of sterilisation before the milk is finally consumed the number of micro-organisms may become almost infinite. This growth of bacteria can only occur at the nutritive expense of the milk itself, a loss which probably far outweighs any possible detriment to the nutritive value from the ordinary process of sterilisation. Bacteria, as we know, are wasteful and extravagant feeders; the chemical energy of which they deprive the nutritive media in which they thrive is utterly disproportionate to the energy which they re-accumulate in their growth.

With regard to the respective nutritive values of boiled and unboiled milk the question is one of many issues. As has been pointed out by one of our correspondents, there is ample experimental evidence to prove that from the point of view of digestibility and absorbability from the bowel neither variety can materially yield in superiority to the other; if anything, the balance inclines to the side of boiled milk. Nor is there any reason for supposing that, as measured in calories or any other unit representing its energetical equivalent as a food, the nutritive value of milk presents differences either in the boiled or unboiled condition. There is, however, a quality possessed by milk, in common with other animal and vegetable juices, which cannot be measured, as far as we know, by any ordinary unit of energy. This unknown quality has been variously described as the anti-scorbutic or vital element of fresh food substances—a *tertium quid* which has so far remained undefined. We know, however, that in some form or other it is an absolutely essential ingredient of food if animal life is to be maintained for any considerable period of time. We gather, also, that in the case of milk this unknown element it is at its maximum of efficiency at the moment when the mammary secretion leaves the udder, and that from that time forward it suffers a gradual fall in its index of utility, whether it be merely kept for ordinary periods of time or whether it be exposed to mechanical manipulation, to the action of heat or chemical substances, or whether it be simply diluted with water. The exact *modus operandi* of these deleterious processes is still a matter of speculation. It must, however, be borne in mind that milk represents a special form of disintegrated protoplasm, and that as the dying cell gradually breaks down into a solution containing emulsified fat, proteid, sugars, and salts, the complex chemical affinities of a living tissue are loosened or disunited, so that finally a dead, some say a dying, solution of mixed elements is discharged from the lacteal ducts for the purposes of extraneous nutrition. It seems reasonable to suppose that the sum total of these immeasurable energies must ultimately depend on the degree in which the normal chemical complexes composing the original protoplasm are loosened or disunited in the natural evolution of death, or subsequently by mechanical or chemical processes *in vitro*. The further the analytical disintegration is carried the more difficult must be the subsequent synthetical processes by which a substance so disintegrated is made to live again in the tissues of the animal organism which uses it as a source of energy. And, further, it may depend upon the inherent vital powers of the organism whether or no in any particular case such a source of energy can be utilised in any degree whatsoever. As far as fats, sugars, and proteids are concerned, we know that, as they occur in boiled milk, they are readily utilised by the animal economy. We do not know, however, to what extent the organism is capable of re-uniting other chemical affinities which may have been disunited in the process of boiling. For instance, BUNGE many years ago asked the pertinent question whether it was not possible that the inorganic cells of milk might be combined with some organic substance and that they were only "digestible in that condition." We are still waiting for an authoritative answer, though for practical purposes the question is narrowed down to one of utilisation by the tissues rather than digestibility by the stomach or bowel. One of our correspondents—namely, Dr. R. HUTCHISON—has referred to the great preponderance of phosphates in the "skin" of boiled milk. The very presence of these "dead" phosphates may be a measure of the degree of chemical disunion between these and other salts and their organic bases, brought about by the procedure of boiling. If it be true that the living organism stands in constant need of a supply of anti-scorbutic energy in its food, and that this element can be variously destroyed by manipulative processes, it follows that when milk constitutes an exclusive dietary extreme care should be exercised in its adequate preservation or provision should be made for providing a substitute. In the case, however, of adults, when the normal diet is a mixed one, containing an abundance of fresh food, it is a matter of indifference whether it be present or whether it be absent in the milk, which can at most only constitute an insignificant factor in the daily nutritive supply.

It would be presumptuous to suppose that the last word has been spoken in this controversy, but pending more convincing and unequivocal evidence we are of the opinion that the dangers which have been attributed to boiled milk have been exaggerated. Moreover, boiled or sterilised milk in its application to infant feeding—or for the matter of that to adult feeding—has in competent and experienced hands proved a perfectly safe and satisfactory food for all the purposes of nutrition. At all events, we are satisfied

that there is clear and conclusive evidence that boiled milk when scientifically administered can supply all the essential elements of a physiological dietary. It has taken many years of patient insistence on the part of medical men, it has taken men of the calibre of TYNDALL, of PASTEUR, and of LISTER to educate the public to a proper sense of the importance of "cleanliness"—that is to say, cleanliness in its bacteriological interpretation—so that for our part we regard it as regrettable that any opportunity should be given to the public to call in question the value of this principle, whether in its general or particular applications. Such an opening for criticism or distrust is not only fraught with danger to the public, but also lends colour to the charge of inconsistency which has ever been the opprobrium of the medical profession.

Annotations.

"Ne quid nimis."

INDECENT ADVERTISEMENTS.

AT Lambeth Police-court recently a man named Wilkins was committed to take his trial at the Old Bailey on a charge of selling indecent photographs which he advertised in the newspapers, describing them, without too closely veiling their nature, as "continental studies from life." Mr. Wontner, who appeared for the police, appealed to the magistrate asking him for an expression of opinion which might act as a deterrent upon the newspapers which published such advertisements, pointing out that without the aid of advertisement the trade in obscenity of this class could hardly exist and certainly could not prosper. He further stated that he would be sorry to mention the names of some of the newspapers in which the advertisements appeared and which he held in his hand because they were so "respectable." We agree with Mr. Wontner that such advertisements are a disgrace to all newspapers in which they appear, although we do not see why in asking for a public rebuke he should have withheld the names of the "respectable" offenders. We have ourselves protested against the advertisement of professed abortifacients until our readers must be almost tired of the subject; we have given the names of the offenders unsparingly; and this, aided by certain recent prosecutions, has practically stamped out this particular style of advertisement, and scotched, though, perhaps, it has not killed, the trade. We have pointed out again and again that newspapers continually insert advertisements which are obscene by Act of Parliament if exhibited on a gate post or in a urinal, and which found in the places named would be the subject of prosecution. But if we have suggested that a newspaper should keep its columns as free from indecency as a public latrine, we do not see that the police have great cause to complain in the matter. In many cases they could prosecute the newspaper. In any case the advertisement affords them the name and address of the vendor of filth—information of which they so rarely avail themselves that his trade practically goes on without check from the appointed administrators of the law. For years the advertising and selling of would-be abortifacients went on without any hindrance from the police. The Chrimes brothers were prosecuted because they took to blackmail and continued until at last one or more of their victims complained. Some time afterwards the firm that traded under the name of Frain was prosecuted, but in our columns we had given the names, the letters, and the analysis of the goods of such persons as Ottey and others at least as bad as "Frain" whose case we had dealt with long before the police took it up. On the whole, we are of the opinion that the disgraceful trades alluded to owe their prosperity quite as much to the laxity of the police as to the venality of the newspapers, which at any rate inform the police as to what is going on in as plain terms as they inform the public.

A CONCOCTION.

WE have a bone to pick with *Truth*. While thinking it proper and becoming to afford publicity to an anonymous and malevolent story,[1] in which a soldier is represented as having had his eyes removed one after the other by military medical officers in the vain hope of relieving pain that in reality was due to an alveolar abscess, the editor explicitly disclaims all responsibility for the statements therein. Yet he proceeds to formulate the following conclusion: "I take this to be an argument in favour of 'post-graduate study' for army medicos, whether British or Indian." Post-graduate study is an excellent thing in every profession, but to find an argument in its favour in what is evidently a cock-and-bull invention is distinctly illogical. *Truth* has rendered so many services to the public and so evidently intends to be fair in the many-sided criticisms which its readers expect that we are disappointed to find in its columns the passage to which we have alluded. Such a story, reflecting so terribly on the scientific position of the Royal Army Medical Corps, should not, we think, have been published until its accuracy was demonstrated beyond contradiction, and even then there are circumstances which might well have determined its suppression. It is, of course, a manifest concoction.

FRUIT IN THE ASSUAGEMENT OF THIRST.

CHEMICAL analysis would assign practically no nutritive value to the juicy fruits, for they consist of little more than a cellulose envelope containing a solution of sugar, the amount varying from 17 per cent., as with grapes, to about 1·4 per cent., as with lemons. The amount of water in fruit is considerable. In water-melons it is no less than 95 per cent., in grapes 80 per cent., in oranges 86 per cent., in lemons 90 per cent., in peaches 88 per cent., in apples 82 per cent., in pears 84 per cent., in plums 80 per cent., in nectarines 83 per cent., and in strawberries 90 per cent., not a fruit in the whole category containing less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important rôle in diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed and fruits would appear to be endowed with a subtle inimitable flavour which is ample inducement to imbibe fluid in this most wholesome form. The question so prominent in people's thoughts at this hot season of the year as to what to drink might, therefore, on sound physiological reasoning, be answered, eat sound, ripe, juicy fruit. It is noticeable that as fruit enters into the diet the indulgence in alcoholic drinks is diminished. Thus it is most satisfactory to observe people taking a good juicy slice of melon as preparatory to a meal instead of sherry and bitters or a "cocktail." This is a most commendable practice and the proceeding is dietetically speaking perfectly rational. The flavourings of fruits, although of little nutritive value, are undoubted stimulants to the appetite and aids to digestion. Moreover, the juice of fresh cut fruit is perfectly free from microbes, is as sterile as freshly clean-drawn milk, and the fruit acids tend to inhibit the power of those disease-producing bacteria which flourish in neutral or alkaline media. The marked anti-scorbutic properties of fresh fruit due to the vegetable acids and their salts in the juice are of great importance. For the most part

[1] Truth, August 8th, 1901, p. 409.

these acids are combined with potash and hence a free diet of fruit preserves a healthy alkaline condition of the blood and there is consequently a reduced tendency to the depositing of acids in the tissues. Peaches and that delicious and delicately flavoured fruit the nectarine contain quite a small quantity of sugar and this, coupled with the fact of the tenderness of their pulp, makes them suitable for the gouty and diabetic. There can be no doubt that the juice of sound ripe fruit is an ideal means of assuaging the intense thirst of hot weather—cooling, refreshing, and of an agreeable flavour. It is a common experience that the more a person drinks to satisfy the demands of thirst in hot weather the worse he feels. The temptation is to gulp down huge quantities of fluid with the result that excessive perspiration sets in and a very uncomfortable and unrelieved feeling follows. On the other hand, a judicious amount of sound, ripe, juicy fruit, whilst containing all the water necessary to assuage thirst, would lead to no such distress and would exercise other healthy effects on the bodily functions.

THE RELATION OF BODILY MUTILATIONS TO LONGEVITY.

IN the *Boston Medical and Surgical Journal* of August 8th Dr. John Homans of Boston has an interesting article upon the subject of the Relation of Bodily Mutilations to Longevity. Dr. Homans is the medical director of the New England Mutual Insurance Life Company and so he writes from one point of view as an expert. But, so he says, there is but little known about the subject and, so far as he knows, there are no statistics on the matter. The only figures which are illustrative are those concerned with men who lost their limbs in the Civil War and who afterwards applied for the Government artificial limbs. In general, says Dr. Homans, the deprivation of any part of the body would make a man's chance of longevity less than that of sound, unmutilated persons, but in many instances there are ameliorating circumstances which would render such mutilated persons as good lives as most other people of the same age. Loss of the upper extremity increases in importance as regards longevity the nearer that the amputation has been made to the thorax. There is also a certain amount of mental depression attaching to the loss of the whole or part of a limb. Dr. Homans points out that the loss of an arm might affect the respiratory power of the thorax in certain positions, and naturally the loss of both arms would be even more injurious. The late Dr. W. Brinton, who in 1856 gave some lectures at the Royal Free Hospital on "Examinations for Life Insurance," remarked that "amputation of a limb for disease is said to confer an increased risk of visceral—especially of pulmonary—disease." In our own opinion the loss of a limb would increase risks to life from injury. Obviously, a man with only one leg is more likely to fall than a man with two, and a man with only one arm would not be so likely to save himself if he did fall as a man with his full complement of limbs. Dr. Homans gives some figures showing that the death-rate among soldiers who had served in the American Civil War and who had lost a limb or limbs was very high, but, as he says, these statistics are not altogether trustworthy, for many men who had lost a limb had also sustained other injuries. Some five years after the war the Government of the United States offered an artificial limb, or its commuted value once every five years, to all soldiers who had lost a limb in the war. At the close of the war there were 13,052 recoveries from amputations such as would have entitled the sufferers to apply for an artificial limb. In 1870, when the Act of Congress came into operation, only 10,187 applied, so that presumably 2865 maimed soldiers had died, being very nearly 22 per cent. of the total. From the close of the war up to 1890 5621 soldiers died out of the original 13,052, or 431 per 1000. In the first five years the percentage was, as we have said, nearly 22. In the last it was only 7·58 of those alive in 1885. As regards abdominal sections, Dr. Homans says that they all increase risk to life, principally on account of the chance of ventral hernia at one time or another setting in, but removal of small portions of the bowels is, he thinks, not likely to shorten life. Dr. Homans has raised a very interesting point and one which might be further studied with advantage.

THE NEW CHIEF MEDICAL OFFICER FOR CAPE COLONY.

WE have had sent to us from Cape Town copies of a newspaper published in the colony and called *Greater Britain*, in which letters are appearing commenting seriously upon the appointment of Dr. Gregory to the post of principal medical officer of the colony. We have been asked to express an opinion upon the appointment, which, we are informed, has not been favourably received by the medical profession; indeed, from the letters published by our contemporary, the medical profession do not consider that Dr. Gregory has any proper claims to the post. We are not in a position to say much upon the matter. Probably those who appointed Dr. Gregory had good reasons for thinking that he was a fit man to fill a difficult and responsible position, for we cannot imagine a more serious offence to the community than the appointment as guardian of its public health of a gentleman of inadequate qualifications. Dr. Gregory seems to have spent the greater part of his time in the colony not so much in acquiring a knowledge of sanitary matters and administrative experience in the details of public health as in one of the departments of Cape Town Colonial Office. In the current issue of the Medical Directory we are unable to find his name, but in the South African Medical Directory of 1896 there is a Dr. Gregory residing in the colony, but he is not given as a D.P.H. The public health of Cape Colony at the present moment is of paramount, even imperial, importance; and we certainly think that no one should be appointed to the position who is not hall-marked as an expert in sanitary science. Dr. Gregory may be this, for all we know. We are not reflecting upon him, but stating a truism.

OZONE IN THE RAILWAY CARRIAGE.

THE air of a railway carriage is seldom without an objectionable characteristic; indeed, it has a peculiar smell of its own. The atmosphere may be tainted by the much-used upholstery or by varnish or oil, or the grime deposited by the engine on the seats and hat rails and in the various crevices, of which plenty are usually available for the process. Of course the windows may be flung wide open to get as much change of air as possible, but then dust, smut, and draughts invade the compartment. It is, in fact, difficult to keep the air of a railway carriage in a satisfactory state, and how bad it gets sometimes may easily be ascertained by entering a crowded compartment at the end of a journey. Railway headache is without doubt largely to be attributed to the impure and re-breathed air of the carriage. Many contrivances exist for the ventilation of railway carriages, but the majority of them act with limited success. Nothing sweetens or freshens stale air better than ozone and now that most of the railway companies have successfully adopted a system by which each carriage on its journey develops by means of a dynamo attached to the axle-trees its own current of electricity for lighting purposes there is no reason why the same current should not be utilised at the same

time to ozonise the air of the compartment. The quantity of ozone required is small. The result would certainly be good since ozone has a remarkably destructive action on aerial impurities and unpleasant smells, and gives the air a degree of freshness similar to that of the sea-breeze. It rapidly overcomes the smell of stale tobacco-smoke which so persistently lingers in smoking compartments or in rooms where the upholstery is heavy or where cumbersome curtain hangings are the custom. It is reasonable to believe that if this expedient could be adopted much of the distress and fatigue of a railway journey would disappear. It is too much to hope that the same means of maintaining air in a fresh and pure state could be adopted in omnibuses, for even the problem of satisfactorily lighting these vehicles has not yet been solved. Again, the speed of the omnibus, we imagine, would never be high enough to generate a current sufficient for lighting purposes. The Underground Railway or "The Tube" might adopt automatic ozonisers in their trains with advantage; the suggestion might even appeal to the directors and shareholders of the former company as an alternate scheme to electric traction.

CERVICAL AND BULBAR TABES.

Dr. S. Solis Cohen and Dr. W. G. Spiller of Philadelphia report, in the August number of the *American Journal of the Medical Sciences*, a rare and interesting case of tabes affecting the cervical and bulbar regions of the spinal cord, together with the results of necropsy. The condition is one which has been mistaken for, or wrongly diagnosed as, syringomyelia. The patient was a man, aged 67 years at the date of his death in 1900. At the age of 25 years he contracted syphilis. He had had secondary, but not tertiary, syphilis. Later he developed ptosis of the right eye, inequality of the pupils, difficulty in coördinate movements of the lips, so that whistling and smoking were difficult, and the latter habit had to be abandoned. Deglutition was also attended with considerable difficulty. The tongue exhibited fibrillary tremors and some hemiatrophy of its left side. The tactile sense was fair, but the temperature sense was markedly impaired on the right side of the face. Vision was good and ophthalmoscopic examination showed normal discs. He now developed an irritable ulcer of the cornea which under treatment healed in about 10 days. The pupils showed the Argyll-Robertson symptom. The knee-jerks were present and the mental condition was clear. Gait was normal and he could stand steadily with his eyes closed or balance himself on one foot at a time. The above clinical report was made in 1889. He remained under treatment for nearly 12 years afterwards, dying in 1900 from pulmonary œdema and inanition following complete paralysis of deglutition. At this time the sense of taste had been largely lost for some time, and he had also begun to complain greatly of pain in the abdomen which was very tender to touch. Occasional but severe darting pains were experienced in the right leg and were relieved by morphine. The mental condition was clear to the last. He never at any period of the illness had ataxia or abasia. He had had two attacks of uræmia, one about two years before death and one about 10 days before the same. At the necropsy the following changes were found. The whole of the Rolandic gyri and convolutions were somewhat atrophied and depressed, the sulci thus appearing wide and gaping. This atrophy involved also the whole of the pre-frontal operculum. There was also a localised atrophy of the fore part of the superior frontal convolution on the right side, and the occipital cornu of the lateral ventricle was dilated on the left side to twice the size of its fellow. Examination of the spinal cord showed an absence of degenerated fibres in the lumbar region. In the mid-thoracic region there was very slight degeneration of the posterior spinal roots increasing as the sections passed upwards to the cervical region. At the eighth cervical segment of the cord a narrow band of degeneration began to make its appearance in Burdach's column close to the entry of the posterior roots. This was continued up the cervical region and almost entirely on the right side. With Marchi's method no recently degenerated fibres could be traced in the cord. The anterior cornual cells showed marked pigmentary degeneration. The hypoglossal nucleus was somewhat atrophied on the left side. The ependyma of the floor of the fourth ventricle was granular. The trigeminal nucleus in both its sensory and motor portions was present only on one side, having become entirely degenerated on the other side. The right cerebral peduncle was considerably atrophied. There were atrophy and changes in the oculo-motor nuclei resembling those following section of the nerves. These lesions justified the diagnosis of an atypical and rare form of tabes (cervical tabes), having been noticed but once in 106 cases of tabes studied by Déjerine at the Bicêtre. The present case showed the presence, also, of bulbar tabes, a still rarer condition, of which only three other cases are known to medical literature.

"THE NEW POOR-LAW INFIRMARY AT HALIFAX."

IN our issue of last week (p. 462) we commented upon the position at Halifax with reference to the appointment of a medical officer for the new workhouse infirmary. Dr. T. M. Dolan, having refused to take the post without any addition to his present salary, the Infirmary Committee on August 12th offered the post to Dr. J. F. Hodgson. We understand that the reason for the cheeseparing policy of the guardians was that if Dr. Dolan had been granted £105 in addition to his present salary it would have entailed an addition to his superannuation allowance of £80. Notice was given that at a meeting of the guardians held on August 14th a motion was to be brought forward which if carried would do away with the difficulty so far as regarded the superannuation question, but at the time of going to press we have no information as to the result of the meeting in question.

STREET NOISES.

WE have received sundry letters from various correspondents upon the intolerable nuisance caused by sellers of newspapers and others. One correspondent ends up his letter by saying, "Surely there is some remedy." The only remedy is as follows. Next time he is annoyed by a newspaper seller yelling he must go out, he must keep the newspaper seller in view with one eye and with the other look for a policeman. When he is lucky enough to see both—the policeman and the yeller—he must complain to the policeman who will ask the yeller for his name and address. Some name and address will be given, and at some future date the complainant will receive a summons to attend the police-court of his district. There he may or may not find the yeller. If by great good luck he does find him the man or boy in question possibly will be fined and the nuisance will go on in exactly the same way as before. This is the only remedy of which we know, and if it resembles the celebrated recipe for killing fleas we must remember that we live in a free country. There are numerous sellers of newspapers who do not yell, but that is not to the point. Why deprive a small boy or a large man of the pleasure of roaring "Three o'clock winner"? True, he annoys a great many hard-working ratepayers, but that only makes his employment more enjoyable. The magistrates are the persons who are to blame. First of all because they will not, with possibly the exception of Mr. Plowden, hear any charge except one made on the authority of a dweller in the district, and secondly because they inflict such ridiculous

penalties. But why London, which suffers enough from unavoidable noises, should be compelled to endure absolutely unnecessary noises is one of those problems which are as incapable of solution as the idiotic regulations of the Post Office as regards what constitutes one word or two in a telegram. We can only advise everybody who suffers from street noises to worry his Member of Parliament, his borough council, and his London County Councilman until something is done.

A UNIFORM METHOD FOR THE ESTIMATION OF ARSENIC.

THE apparent ubiquity of arsenic has rendered an accurate method for its estimation even in the minutest amounts very desirable. The discordant views expressed by chemists as to the trustworthiness of methods which have hitherto been looked upon as exact and unfailing have done much to complicate the question. Careful investigation, therefore, of all the methods known both for the detection and estimation of arsenic was needed and such an inquiry has been approached in an eminently practical way by a joint committee of the Society of Chemical Industry and of the Society of Public Analysts. This committee have circulated amongst the members of the two societies a number of samples containing definite quantities of arsenic and have carefully considered the results which have since been returned. We note with satisfaction that they already report that the results will probably justify them in prescribing a method for dealing with the various substances, but before taking this step they think it advisable to submit this method to continued practical trial. We hope that in this way a standard method will be reached, and further, that some light may at the same time be thrown upon the organic compounds of arsenic, with the view that the arsenic in these compounds may be made to respond to the same tests and to admit of the same method of estimation. The cacodyl compounds, which may be taken as leading types of organic arsenic bodies, differ vastly clinically from the inorganic compounds, and a similar difference exists in regard to the chemistry of the arsenic in this particular state of combination. The results of this very sensible inquiry will be of the utmost importance, and they should be of eminent service to the members of the Royal Commission on Arsenic, who still have a colossal field of inquiry before them which must be thoroughly gone over if the final issue is to be satisfactory.

A CASE OF BURROWING EPITHELIOMA OF THE ALVEOLAR PROCESS.

IN the current issue of the Transactions of the Odontological Society an account of an interesting case of burrowing epithelioma of the jaws is given by Mr. Stanley Colyer. For two years previously to being seen the patient, a female, had suffered from a sinus over the region of the left maxillary lateral incisor which was pulpless. Necrosis of the cementum was diagnosed and the root was extracted. There were no swelling of the alveolus and nothing in any way to suggest malignant disease. An examination of the root showed that the cementum covering the lower third was necrosed, while immediately below the necrosed portion and attached to the pericementum, which appeared otherwise quite healthy, were some small lumps of ragged tissue which had obviously been torn away from similar tissue in the alveolus. The specimen was placed in formalin with the intention of making a microscopical examination. Three weeks later the patient returned with acute pericementitis extending from the right central incisor to the left second premolar. The sinus had not healed and a suspicion of malignant disease was aroused. A microscopical examination of the tooth which had been extracted was made and epithelioma was diagnosed. The growth on removal was found to extend from the right cental incisor to the left first molar, the antrum not being in any way invaded. The interesting features of the case were: (1) the absence of external signs of the disease; (2) the escape of the antrum from implication, even though the growth in the alveolar portion of the bone was extensive; and (3) the origin of the growth, the epithelioma apparently having arisen from the tissue of the pericementum and not the oral epithelium. An endeavour was made by Mr. Colyer to substantiate the last-named feature, and it was shown that many observers had demonstrated the presence of isolated pieces of epithelium—remnants probably of the epithelial sheath of Hertwig—in the pericementum. These remnants were, he thought, an example of Cohnheim's "rests" and could, under suitable circumstances, become the forerunners of malignant disease.

THE SURGICAL TREATMENT OF ACUTE NEPHRITIS.

IN the last few years the question of the surgical treatment of acute nephritis has from time to time been brought forward, and it formed the subject of a discussion at the late meeting of the British Medical Association. It is again to be considered at the approaching meeting of the Scandinavian Medical Congress which is to be commenced on August 29th in Copenhagen. Professor K. G. Lennander of Upsala University will contribute a paper on this subject to open a discussion. While refraining from undue expectations of the benefit to be derived from the recent surgical departure, we are justified in hoping for some improvement in the treatment of a very refractory condition.

POPULAR MEDICINE.

OUR contemporary the *Globe* on August 14th published a "turnover," entitled "Curious Cures." The writer, after quoting the example of the sea-captain who, not being able to supply the medicine numbered 15 in his book of directions, proceeded to give his patient Nos. 7 and 8 mixed, goes on to give examples of various popular superstitions in medicine. The singularly nasty concoctions which our ancestors prescribed for all and sundry were mostly derived from animals, and later researches have shown the belief in them to possess—in some instances, at least—a modicum of foundation. Thus a toad boiled in wine gave a very strong poison which if administered to a dropsical person would probably kill him, but which sometimes effected a cure. It has been shown, however, by sundry observers that the skin of the toad secretes a substance having an action closely allied to that of digitalin and so it might be of great use in cases of cardiac dropsy. To anyone, however, who is inclined to pursue this subject further we recommend a perusal of the work of that ingenious gentleman the Reverend Edward Topsell, who was vicar of East Hoathly and who died about 1638. His "History of Four Footed Beasts and Serpents" will be found a mine of information. To the edition of 1658 is appended "The Theater of Insects, by Tho. Mouffet, Doctor in Physick." This work is also full of remedies. For instance, says the learned Doctor: "That knotty Whip of God, and mock of all Physitians, the *Gout*, which learned men say can be cured by no remedy, finds help and cure by a Spider layd on, if it be taken at that time when neither Sun nor Moon shine, and the hinder legs pulled off, and put into a Deers skin and bound to the pained foot, and be left on it for some time." Dr. Mouffet relates a story of a quack who cured a lady of a tympany by giving her a spider to swallow and concludes his essay with the following eminently sound remarks which are as suitable now as they were when originally written: "Truly in this present corruption of manners and times, how highly is such a Mountebank esteemed, wherein chance is accounted for skill, and one accidental rash cure of a disease, with danger

ofttimes of the patient's life, makes a Quacksalver a great Physician, and he is judged worthy of praise and honour? But a better revenging Judge will correct these things; we pass on to Pismires."

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of Hong-Kong received at the Colonial Office on August 19th states that for the week ending August 17th there had occurred 4 fresh cases of bubonic plague, together with 5 deaths. For the week ending August 11th 8 cases of plague and 3 deaths from the disease, all among natives, have been reported from all Egypt. Six cases and 1 death were reported from Port Said, 1 case and 1 death from Zagazig, and 1 death out of hospital at Alexandria.

MEDICAL OFFICERS IN THE HIGHLANDS AND ISLANDS.

THE *Orkney Herald* of August 1st contains the following advertisement:—

WANTED.—A LADY MEDICAL OFFICER for PAPA WESTRAY, to enter on duties 3rd October. Salary £56 with fees. Apply to John Hourston, Inspector of Poor.

Papa Westray is, as its name shows, one of the lonely little islands like Papa Strona and Papa Stronsay, which were occupied by Celtic missionaries, probably from Ireland, in the sixth century. The island in question lies off the larger island of Westray, from which it is separated by about three miles of sea. It is three and a half miles long by about three-quarters of a mile wide, and its population, according to the *Times Gazetteer* for 1899, is 377. The people are mostly of the poorer class and the medical officer cannot expect to make more than from £3 to £5 in addition to the official salary. This latter, though small, is generous as compared with those offered by a Shetland parish council, namely, £25 for Whalsay and the Skerries, and £15 for Nesting.[1] The Scottish medical officer, it must be remembered, has no security of tenure. He is liable to be dismissed at any moment by the parish council and no appeal lies to the Scottish Local Government Board. We have no desire to prevent the inhabitants of Papa Westray from being able to obtain medical aid if they need it, but we earnestly implore all candidates to make certain that if elected they will obtain three things—namely, fixity of tenure, a free annual holiday, and an adequate salary. The life would be very lonely, the winter is very long and the days are very short—although as against this may be set the fact that there is no night in the summer, or practically none; but it would require the zeal and energy of a Columba or of a Cormac for an educated man or woman who had not been brought up to agricultural pursuits or a sea-faring life to be able to occupy the many hours which necessarily must be passed in exercises outside purely professional employments. Lord Balfour is recommended to consider the need for further legislation.

TREATMENT OF TUBERCULOSIS BY GOAT'S SERUM.

WE have received a pamphlet entitled "Remarks on Tuberculosis and its Treatment," by Dr. Baradat of Cannes, which contains observations made by him at the recent Congress on Tuberculosis. He draws attention to the generally accepted theory that there are two factors in the etiology of tuberculosis, the infectious agent and the soil on which it develops, the characteristics of which are either acquired or hereditary, and insists that for the purposes of treatment the one is as important as the other, and after a survey of various forms of treatment proceeds to give his own experience on the use of serum therapy founded on the supposition that the blood of certain animals confers on other animals immunity from tuberculosis and may even cure this disease. His view, however, is not only that the serum of goat's blood is antitoxic and bactericidal, but also that it is a "tonic"—that is to say, stimulating and regenerative. He quotes Landouzy who maintains that it is this idea of helping those who are in the incipient stage, at a time when the germs of secondary infection have not yet attacked them, that has led medical men to make use of "the immunising agents that are antitoxic or bactericidal owing to their strengthening action on phagocytosis." Dr. Baradat also refers to the theory of Metchnikoff who regards the sera not as antitoxic but as stimulating agents of phagocytosis, or, in other words, provokers of organic resistance. The use of the serum of the goat has been used in cases of tuberculosis by various observers with varying success, but has not been largely employed in this country. Dr. Baradat maintains that the use of the serum has given him "unexpected results" in serious cases of tuberculosis. We infer from the context that he means successful results. He administers one hypodermic injection of two cubic centimetres of the serum every other day. In some cases, however, in the case of nervous patients especially, he has observed after each injection an exaggeration of cellular activity, showing itself in the shape of fever, erythema, and dyspnœa; in such cases Dr. Baradat administers the serum internally, but in order to obtain the same tonic and stimulating effects the dose must be increased from two to 10 cubic centimetres. There is nothing more deceptive than to draw conclusions from the result of treating a few cases of pulmonary tuberculosis with a certain remedy, but Dr. Baradat's experiences would indicate that the administration of the serum of goat's blood should have further trials in the treatment of patients suffering from tuberculosis.

[1] THE LANCET, Dec. 1st, 1900, p. 1595.

WE deeply regret to announce the death of Lady Simon, the wife of Sir John Simon, and tender our sincere and respectful sympathies to her husband. Lady Simon, who had attained the great age of 84 years, had been the dearly loved wife of her distinguished husband for 53 years.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6727 births and 4673 deaths were registered during the week ending August 17th. The annual rate of mortality in these towns, which had been 21·2, 22·4, and 22·1 per 1000 in the three preceding weeks, decreased last week to 21·3. In London the death-rate was 19·6 per 1000, while it averaged 22·4 per 1000 in the 32 large provincial towns. The lowest death-rates in these towns were 10·4 in Halifax, 13·2 in Croydon, 13·9 in Cardiff, and 14·2 in Brighton; the highest rates were 27·2 in Hull and in Sheffield, 28·7 in Salford, 30·2 in Gateshead and in Sunderland, and 30·5 in Birkenhead. The 4673 deaths in these towns last week included 1620 which were referred to the principal zymotic diseases, against 1755 and 1752 in the two preceding weeks; of these 1310 resulted from diarrhœal diseases, 97 from measles, 65 from whooping-cough, 64 from diphtheria, 42 from scarlet fever, 40 from "fever" (principally enteric), and two from small-pox. The lowest death-rates from these diseases were recorded in Plymouth, Bristol, Swansea, and Halifax; and the highest rates in West Ham, Salford, Hull, Sunderland, and Gateshead. The greatest mortality from measles occurred in West Ham, Salford, and Sheffield; from scarlet fever in Preston; from whooping-cough in West Ham and Swansea; and from diarrhœal diseases in Manchester, Salford, Burnley, Hull, Sunderland, and Gateshead. The mortality from "fever" showed no marked excess in any of the large towns. The 64 deaths from diphtheria included 30 in London, six in Leeds, five in Leicester, three in West Ham, and three in Sheffield. Two fatal cases of small-pox were registered in London, but not one in any other of the 33 large towns; the number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 11, 13, and 11 at the end of the three preceding weeks, had risen again to 13 on Saturday, August 17th; eight new cases were admitted during the week, against two,

four, and three in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 3101, against numbers increasing from 2907 to 3148 on the four preceding Saturdays; 300 new cases were admitted during the week, against 374, 391, and 306 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 134, 126, and 126 in the three preceding weeks, declined last week to 103, and were 54 below the corrected average. The causes of 35, or 0·8 per cent., of the deaths in the 33 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Manchester, Salford, Bradford, and in 14 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Preston, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·8 and 19·2 per 1000 in the two preceding weeks, further declined to 19·0 per 1000 during the week ending August 17th, and was 2·3 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 12·7 in Leith and 14·2 in Perth to 19·6 in Paisley and 20·8 in Glasgow. The 606 deaths in these towns included 111 from diarrhœa, 18 from whooping-cough, 11 from measles, five from "fever," three from scarlet fever, and two from diphtheria. In all 150 deaths were referred to these principal zymotic diseases last week, against 134, 174, and 168 in the three preceding weeks. These 150 deaths were equal to an annual rate of 4·7 per 1000, which was 2·7 per 1000 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 99, 128, and 129 in the three preceding weeks, declined again last week to 111, of which 58 occurred in Glasgow, eight in Dundee, 12 in Edinburgh, 10 in Leith, four in Greenock, three in Aberdeen, three in Paisley, and three in Perth. The deaths from whooping-cough, which had been 28 and 12 in the two preceding weeks, rose again to 18 last week, and included 10 in Glasgow, four in Edinburgh, two in Dundee, and two in Paisley. The fatal cases of measles, which had been 13 in each of the two preceding weeks, declined last week to 11, and were all registered in Glasgow. The deaths referred to different forms of "fever," which had been two and six in the two preceding weeks, declined to five last week, and included two in Glasgow and two in Paisley. The three fatal cases of scarlet fever, two of which were recorded in Glasgow, corresponded with the number in the preceding week. The deaths referred to diseases of the respiratory organs in these towns, which had been 65 and 44 in the two preceding weeks, increased again last week to 53, but were slightly below the number in the corresponding period of last year. The causes of 14, or more than 2 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·6, 20·6, and 22·4 per 1000 in the three preceding weeks, declined again to 19·9 per 1000 during the week ending August 17th. During the past four weeks the death-rate has averaged 20·9 per 1000, the rates during the same period being 19·2 in London and 17·6 in Edinburgh. The 143 deaths of persons belonging to Dublin registered during the week under notice were 18 below the number in the preceding week, and included 34 which were referred to the principal zymotic diseases, against 26, 32, and 34 in the three preceding weeks; of these 30 resulted from diarrhœa, three from whooping cough, and one from scarlet fever. These 34 deaths were equal to an annual rate of 4·7 per 1000, the zymotic rates during the same period being 6·0 in London and 2·8 in Edinburgh. The fatal cases of measles, which had been 14, 20, 23, and 33 in the four preceding weeks, declined again last week to 30. The 143 deaths in Dublin last week included 39 of children under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants showed a very marked decline, but those of elderly persons were slightly in excess of the number recorded in the preceding week. Five inquest cases and three deaths from violence were registered; and 41, or nearly one-third, of the deaths occurred in public institutions. The causes of 10, or nearly 7 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: George S. Smith to the *Cæsar* and Alexander M. French to the *Empress of India*. Staff Surgeons: Frederick W. Stericker to the *Fox* and J. A. Moon to the *Implacable*. Surgeons: J. H. Read to the *Implacable*; Henry E. Raper to the *Vulcan*; Robert W. G. Stewart to the *Hazard*; Robert R. Fasson to the *Cæsar*; John E. H. Phillips to the *Empress of India*; and T. B. Shaw, P. T. Nicholls, A. T. Gailton, and G. S. Davidge to the *Duke of Wellington*, additional for Haslar Hospital.

ROYAL ARMY MEDICAL CORPS.

Major G. Tuke joins at Woolwich, and Lieutenant Davies and Lieutenant A. W. Gibson are posted to the Cambridge Hospital, Aldershot, for duty. Major Dodd assumes temporary charge of the Connaught Hospital at Aldershot.

MENTIONED IN DESPATCHES.

In despatches from Lord Kitchener published in the *London Gazette* of August 20th, 1901, and dated Pretoria, July 8th, 1901, the following officers are mentioned: Surgeon-Captain F. B. Reid, West Australian Mounted Infantry, showed an absolute disregard of danger in performing his duties at Brakpan on May 16th. Captain J. G. Berne, R.A.M.C., for special good service during the Boer attack on convoy near Mooifontein, south of Bethel, May 25th, 1901. (Private Dawes, R.A.M.C., is also specially mentioned for good work under heavy fire on the same occasion.) Surgeon-Captain E. J. O'Neil, New Zealand Mounted Rifles, who, on June 16th, under heavy fire, went three times to the wounded and succeeded in getting in Lieutenant Ryan and two men.

SOUTH AFRICAN WAR NOTES.

The following have been discharged from hospital to duty:—Captain H. W. Vaughan-Williams, R.A.M.C., Lieutenant P. G. Stock, R.A.M.C., and Civil Surgeons Runciman and James McMurray.

Civil Surgeon H. Ll. Apthorp is on passage home.

INDIAN MEDICAL SERVICE.

The following is the list of successful candidates for the Indian Medical Service at the examination held in London on Feb. 9th and following days:—

Names.	Marks.	Names.	Marks.
A. E. J. Lister	3346	R. J. Bradley	2633
T. F. B. Williams	3135	E. A. Loch	2593
S. H. L. Abbott	3077	R. M. Carter	2560
A. W. Greig	3015	R. L. Hagger	2545
R. E. Lloyd	3013	D. G. R. S. Baker	2500
J. Woods	2966	T. W. Harley	2472
H. B. Steen	2940	J. W. McCoy	2306
D. Munro	2929	R. A. Willcocks	2264
E. Bisset	2910	T. G. F. Paterson	2220
J. E. Clements	2890	D. G. Rai	2207
A. W. Overbeck Wright	2665		

NAVAL AND MILITARY PRISONERS IN IRELAND.

A recent blue book dealing with the prisoners of Ireland shows that there has been a considerable increase in the number of naval and military prisoners committed to civil prisons during the past year. For the three years prior to 1899 the average number of committals was 290, but in 1899 the numbers rose to 359 and in 1900 to 838. This increase appears to be owing to the large number of troops under arms, to the fact that they were to a great extent composed of militia and reservists of different descriptions, and to the great number of fraudulent enlistments, false answers on attestation, and serious military crimes committed to obtain discharge. The increase in naval prisoners has been principally in Cork and is attributed to the fact that naval manœuvres on a more extensive scale than in the preceding year were carried out off the southern coast of Ireland in 1900. All defaulters sentenced to imprisonment during that time were sent to Cork Prison. The committals last year from Berehaven alone, which is becoming an important naval station, were 78, as compared with none in 1890.

Surgeon-General W. Taylor, A.M.S., C.B., Principal Medical Officer in India, has been appointed an Honorary Physician to the King, vice Deputy Inspector-General R. Domenichetti, deceased.

DEATHS IN THE SERVICES.

Brigade-Surgeon Thomas Young Baker, A.M.S. (retired), on August 21st. He entered the service in 1860 and retired with the rank of Hon. Brigade-Surgeon in 1885.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT CHELTENHAM.

THE SECTIONS.

MEDICINE.

FRIDAY, AUGUST 2ND.

THE closing meeting of the section commenced with the reading of a paper by Dr. EDOUARD RIST (Paris) on

The Bacteriology of Fœtid and Gangrenous Suppuration.

He said that in diseases where fœtor was present, such as appendicitis, mastoiditis accompanied by crackling œdema, and in some cases of empyema, if the pus was examined under the microscope very many bacillary forms could easily be made out. The polymorphism of this assemblage of micro-organisms was very marked, yet after preparing culture-tubes from the same pus, though a luxuriant growth would occur, yet on microscopical examination only a few common forms of bacteria would generally be found. It was not likely that these common forms were the active agents in producing fœtid inflammation, gaseous phlegmon, or discrete gangrene in the lungs. It had occurred to Dr. Rist that the reason why the rarer forms of bacillus would not grow was that the conditions of culture did not suit them. Dr. Veillon of Paris had devised a simple method of anaerobic culture free from the difficulties of the hydrogen and other methods. Diluted pus was mixed with liquid sugared agar and with this tubes were filled to a height of about four and a half inches. The agar was then solidified by placing the tubes in cold water. Under these circumstances all the microbes except those occupying the upper superficial layer of the culture medium were growing under anaerobic conditions. A profuse growth generally occurred and on examining specimens taken from the lower layers of the tube very many organisms were found to be growing, and Dr. Rist gave a long list of names of the bacilli which had been isolated and described by himself and his colleagues, some being new to science. He hoped that in other hands the method might lead to the further elucidation of the nature of the so-called anaerobic bacilli.

Dr. H. J. CAMPBELL (Bradford) asked if the pneumococcus of Fraenkel could cause suppuration, as he thought it had done so in one of his own cases.

Dr. RIST, in reply, said that it could do so, but that in his opinion, if fœtor were well marked, they ought to be able to find the anaerobic organisms he had been describing, which he considered were the true cause of such conditions and not the bacillus coli communis.

Dr. MCPHEDRAN (Toronto) and Dr. WILLIAM GOLDER communicated a paper on

A Case of Indigouria.

The condition was merely a clinical curiosity. A male patient, aged 24 years, consulted him for general malaise and tired feelings. No objective signs were discovered, but he mentioned that his urine was of a blue colour. On a specimen being passed it had the characteristic bluish-green colour of indigo. Its specific gravity was 1029. It contained no albumin or sugar. On microscopical examination the pigment could be seen in small blue granules. Dr. McPhedran made some remarks on previously published cases and said that the cause of the condition was quite unknown.

Dr. J. RIVIÈRE (Paris) read a paper on

The Abortive and Curative Treatment of Acute Alimentary Diseases, and particularly Enteric Fever and Appendicitis, by a Judicious Use of Calomel, Water, Heat, and Quinine.

The motto of the paper was, "As the microbe so is man killed by his own toxins and refuse." Starting from this thesis Dr. Rivière contended that the best way to treat diseases such as those mentioned, which interfered with the proper excretion of refuse matters, was to administer such a drug as calomel. His practice was to give five grains each of calomel and sodium bicarbonate placed directly on the tongue at midnight, followed next morning by castor oil beaten up with hot water or eight grammes of magnesia. Such treatment seldom failed to reduce fever and he thought that in many cases the reduction was permanent and the treatment harmless. In addition to its use as a cholagogue and intestinal antiseptic calomel was the most powerful and harmless of diuretics. As adjuvants to the calomel treatment he employed hot water and quinine when defervescence had taken place. After describing his treatment of cholera infantum and post-partum inflammation by the same means Dr. Rivière concluded: "All diseases can be referred to one cause—intoxication, and, above all, auto-intoxication, which in my opinion depends directly on the disturbance and deficiency of the hepatic function. The microbe only enters the lists when the machine is foul and choked because it has not been washed out in time."

The PRESIDENT (Dr. E. T. WILSON, Cheltenham) and others discussed the paper.

Mr. CHISHOLM WILLIAMS (London) read a paper on

The Treatment of Phthisis by Means of Electrical Currents of High Frequency and Potential.

Treatment by these means had given such striking results in his hands that he wished to summarise his results in 43 cases. These were all of over a year's duration. The difference between the currents obtained by an ordinary Ruhmkorff coil and that of Tesla was that in the latter the alternations were infinite and the electro-motor force was proportionally high. Thus in the former they might have alternations of 200 per second and electro-motor forces from 10,000 to 20,000 volts, while in the latter alternations of 1,000,000 per second and the electro-motor force from 100,000 to 1,000,000 volts. In using these he found general electrification better than local and a combination better still. Under this treatment the temperature first rose and then fell and progress could be gauged by noting if the reactionary rise could any longer be induced. If it could not be induced by even prolonged exposure to the currents the patient might be considered well. Cough was relieved, sputum was lessened, and bacilli were reduced in numbers and dwarfed in shape. He did not think they were killed by the current. Sweating subsided and the body-weight increased. Mr. Williams quoted Osler as saying that 95 per cent. of patients were unable to afford any treatment away from their own homes. By this method they could all be treated by their own medical man. Of his 43 cases 42 put on weight and lost all symptoms except in a few where a slight cough remained, and a few bacilli might be found occasionally.

Dr. J. RIVIÈRE said that he had been using high frequency currents for more than five years and had had good results with them. He used even more powerful ones than did Mr. Williams.

Dr. D. J. A. CHOWRY-MUTHU (Isle of Wight) read a paper on

The Diagnostic Value of Bacilli in Relation to Phthisis.

He related six cases as illustrating this subject. They all presented the clinical appearance of phthisis, but in none of them could the bacillus tuberculosis be demonstrated in the sputum. They all recovered and were found out to be really cases of chronic pneumonia, syphilitic disease of the lung, chronic bronchitis, &c., and one case appeared to be mycotic bronchitis, a large quantity of muco-purulent matter being expectorated which contained mycelial threads. He recognised the difficulty of demonstrating the bacilli in some cases, but thought that if after thorough search they were found to be absent they might provisionally pronounce the case to be non-tuberculous.

Dr. F. W. FORBES ROSS (London) thought that the severity of cases of phthisis could not be determined by the number of bacilli present in the sputum. In some cases which, from the point of view of symptoms, had been stationary for years bacilli were very abundant.

Mr. GRIFFITH C. WILKIN (Yeovil) read a paper on

Rheumatic Endocarditis.

He related a case of this affection in which the patient was extraordinarily susceptible to the influence of three drugs—morphia, quinine, and nux vomica—given at separate times. One and a half minims of injectio morphinæ hypodermica, B.P., were given for joint pain in the early stages of the disease. The patient became comatose and was only saved from death by large doses of atropine and electricity energetically administered. She shortly afterwards had pneumonia and then left hemiplegia from embolism. Quinine was given but caused intense headache. When she began to recover small doses of tinctura nucis vomicæ, B.P. (five minims), were given three times a day. These caused after a week rigidity

and opisthotonos, which only stopped when the nux vomica was discontinued.

Dr. H. J. CAMPBELL (Bradford) read a paper on

The Treatment of Cardio-arterial Disease.

Diffuse arterio-sclerosis caused a disturbance of circulation and nutrition which was temporarily compensated for by cardiac hypertrophy. After a time, however, when this had reached its maximum, continued high arterial tension was likely to lead to post-hypertrophic degeneration of the cardiac muscle. A correct appreciation of the degree of this tension was desirable, and Dr. Campbell was accustomed to use Hill and Barnard's sphygmometer for that purpose and considered that it answered very well. It did not indeed record very well the extreme degrees of high pressure, but that was of little moment so long as they recognised that the high pressure existed. He deprecated routine treatment in these cases, but thought that each should be considered on its own merits. Harm might be done in one by treatment which would be quite appropriate in others. If kidney sclerosis were also present it additionally complicated matters. In this case he was accustomed to rely on an exclusive diet of milk and large doses of sodium iodide.

Dr. FORBES ROSS read a paper on the Treatment of Tuberculosis by Meat Albumin, which will be found at p. 523.

Mr. STUART-LOW (London) read an unannounced paper on the Use of Mucin in Diseases of the Alimentary Tract, and Dr. J. HADDON (Hawick) one on a Change of Life in Men as well as in Women.

Owing to the room allotted to this section having been changed on each day it was very poorly attended on the last day, members not being able to find it.

SURGERY.

FRIDAY, AUGUST 2ND.

Mr. HOWARD MARSH (surgeon to St. Bartholomew's Hospital, London) opened a discussion on

Injuries of Joints, with Special Reference to their Immediate and Remote Treatment by Massage and Movement.

This subject, he said, was very suitable for discussion at such a meeting as the present. Both massage and movements have long been employed in English surgery, but lately they have come into much more general use. Both are valuable remedies, but if used as a matter of routine both may do great harm. As methods of surgical treatment they must always be closely supervised, care being taken to watch their effect, and especially to be sure that no element is present in the case which renders their employment undesirable. It is necessary to have a clear idea as to what has been termed the "physiology of massage"—as to the different ways, i.e., in which it acts. 1. It enlarges the amount of blood circulating through the part concerned. This is obviously apparent in the skin, which instead of remaining cold and pale becomes warm, and more or less red. The same result was experimentally demonstrated in regard to the muscles by Brunton and Tunnicliffe who showed that the amount of blood passing through them both during massage and after its cessation was increased. This increase of blood is in every way advantageous. It maintains or improves the nutrition of all the various tissues; it promotes the restoration of the functional activity of injured muscles, and it plays an important part in the absorption of lymph and extravasated blood. 2. Its action is mechanical. By kneading and percussion extravasated blood and lymph which have coagulated in the tissues and led to brawny œdema are broken up and dislodged, while by stroking from below upwards they are swept onwards and brought within the reach of healthy lymphatics and a normal venous circulation, so that they can more readily be absorbed. 3. It is an efficient stimulant to damaged muscles through its influence on the nervous system. In such minor injuries as sprains and contusions probably the small nerves ramifying in the injured part are seldom torn across, for they are tough rather than brittle, they are well protected in the subcutaneous tissue and the deeper structures, and their course is often tortuous so that they are not easily put on the stretch. Nevertheless, they are not infrequently so far injured that their functions, for the time being, are more or less suspended, and massage is then a very useful agent in stimulating them to a resumption of activity. It probably acts in a similar manner on the vaso-motor nerves which preside over the arterial system of the part. 4. No one who has watched its sedative effect when applied in cases of recent injury can doubt the influence of massage in reducing muscular spasm and relieving pain. Here it must be used very gently and be limited to stroking and light friction for short periods three or four times a day. 5. Probably massage promotes the absorption of recently formed adhesions provided they are not too extensive and firm. This is a matter of considerable interest. Just as provisional callus, formed in the repair of fractures, is absorbed, so is the new connective tissue which is developed after injury of the soft parts. Perhaps the most obvious instance of this is met with in the case of adhesions following peritonitis. Often even extensive adhesions gradually yet completely disappear, probably as the result of constant disturbance and traction during peristalsis. Much the same result is produced by what may be termed the interstitial disturbance and traction which take place during the different movements employed in massage. As to movements these are of three kinds: those performed under an anæsthetic, passive movements, and voluntary movements on the part of the patient often carried out against resistance. As to movements under an anæsthetic they can be safely applied only when a careful diagnosis has been made. In the first place it must be ascertained that the joint itself is not, nor has been, actively diseased, so that it has undergone no considerable structural changes such as follow tubercle, or osteo-arthritis, septicæmia, or locomotor ataxia. The cases in which this form of movement is most successful are those in which the joint itself is practically healthy while it is hampered by changes in the parts around. Passive movements are chiefly useful in restoring movements that have been lost, or in preventing stiffness in joints which are to be long disused—for instance, a healthy ankle—the patient having disease of the hip or the knee. Voluntary movements on the part of the patient, especially when performed against resistance, are in many instances more valuable than massage. Several forms of apparatus have been introduced for use in these movements and many of them are very satisfactory. In all cases, however, efficient supervision must be maintained. Diagnosis is, of course, of essential importance. It cannot always be exact, but it must be carried far enough to indicate that the case belongs to the general class in which these agents are useful and that no element is present which renders them unsuitable. The conditions for which massage and movements are most useful are sprains and contusions of previously healthy joints unattended with any serious complication, such as dislocation or fracture, any wide laceration of muscle, rupture or displacement of tendons, or such pre-existent conditions as tubercle, gout, or hæmophilia. The treatment of recent fractures by massage was so fully discussed at the meeting last year at Ipswich that it is needless to consider it now. The after-treatment of dislocations has of late years undergone a great and very advantageous change. In the case, e.g., of the shoulder the arm is no longer bandaged to the side for a fortnight or three weeks, but passive movements and massage are regularly used after the second or third day. He had seen a patient thus treated able to move his arm freely in every direction in the course of three weeks. He had also seen a patient walk freely and without lameness three weeks after the reduction of a dislocation of the hip. The chief symptoms which indicate the use of massage and movements are stiffness and pain; but before they are employed the cause of the symptoms must be ascertained as to whether the mischief is inside or around the joints. Take the shoulder. The arm may be stiff and there may be severe pain and marked muscular wasting. Is this a case of disease of the joint itself or of adhesions outside? There is, he believed, only one test to be relied on to determine this question. This is to ascertain whether the joint is as stiff as it at first sight appears to be, or whether, within certain limits, movements are free and smooth. If these free and smooth movements—limited though they be—are present the fact is a strong indication that the joint is sound and that the symptoms depend on surrounding adhesions. (Cases in illustration were related.) As to pain, it is very important to remember that it cannot be used to differentiate between real joint disease and surrounding adhesions. Indeed, in many cases pain due to adhesions is more severe than that produced by joint disease. Muscular wasting—a principal symptom in disease of a joint—may be present

though the case is one of mere adhesions in the capsule and surrounding parts. In some instances movement under an anæsthetic will produce a cure which there seemed at first sight no reason to anticipate, for though the patient complains of "weakness" and pain in the joint there is no appreciable stiffness or any condition for which movement and massage seem called for. These cases, which bone-setters not rarely cure by moving them as they move all others, are instances of slight adhesions which cannot be detected but which are yet sufficient to make the patient walk with lameness and "weakness" of the joints concerned. (Cases were related to illustrate this group.)

Mr. R. H. A. WHITELOCKE (Oxford) spoke of the treatment of injuries to the healthy joints of young adolescents—Oxford athletes. He agreed with the necessity of particularity in diagnosis. In simple sprain with stretching of ligaments which were seen at once he was accustomed to apply elastic pressure by cotton-wool and massage, with a result that the limb was fit for use and sport in three weeks' time. In slight lacerations around the joint he was accustomed to use movement under an anæsthetic to free the articular surfaces from any synovial remnants, then to apply pressure, and in 24 hours himself to move the joint passively and gently massage, but he would allow no active movements until the lapse of 14 days. He rejected the use of rigid apparatus. He remarked that he had to deal with intelligent people who would satisfactorily conform to the treatment. In remote injuries, such as had been treated with rigid apparatus, he thought that adhesions were formed by the organisation of blood-clot which always was present in serious strains, so that unless the movement was early adhesions and stiffness resulted. Often the pain and stiffness were referable to a rheumatic tendency which salicylates rapidly alleviated.

Mr. F. F. BURGHARD (London) agreed in the use of early passive movements in the shoulder-joint, &c., and the badness of prolonged fixation. Movement removed the liability to fixation. He believed in the frequency of movement under an anæsthetic and a gentle attempt to break down the adhesions each week rather than one vigorous attempt. He had formerly used elastic pressure in recent cases, but now he had discarded it and relied on massage alone.

Dr. J. WARD COUSINS (Portsmouth) remarked on the necessity of treating the slight abrasions present in contusions around joints; these were very liable to septic infection in the poor. He believed in an immediate use of the antiseptic bath. He also noted the importance of slight injuries in diathetic subjects, tubercle in the young, and gout in the old; for the latter he found the hot-air bath useful. In general cases he preferred rest for a few days, then massage to the muscles and tendon sheaths, and to leave the joint itself alone. He strongly objected to the probing of wounds around joints; the application of antiseptic dressings was all that was required.

Mr. H. GILBERT BARLING (Birmingham) agreed that there had been too much fixation in the past and believed in early movements with elastic pressure; the latter, he thought, might express accumulated fluid. He confessed he could not, like Mr. Whitelocke, get patients well in three weeks; if he could he would not let them then indulge in athletics, for he believed all such injuries to arise from a state of "out-of-condition" of the muscles. He believed it was better not to use splints in Colles's fracture with moderate deformity; he would ignore the deformity and seek for mobility. He narrated two cases of lady pianists where with no other fixation than that of a sling with passive movements in two days and active movement in a week he had had such good results that the piano could be played in three months.

Mr. J. PAUL BUSH (Bristol), referring to Mr. Whitelocke's remarks, said that he had seen no such speedy results amongst the soldiers in South Africa, even in carefully selected cases.

Mr. J. R. MORISON (Newcastle-on-Tyne) said that he must strike a discordant note. In talking of treatment they were in danger of forgetting pathology. To prevent inflammation was to prevent adhesions. Many so-called injuries to joints were not connected with the joints at all but with their surroundings. He used to suture with gut the fractured patella, not irrigate, and to rest the joint for six weeks, getting a better result by such means than others with wiring and early passive movements. In miners displacement of the semilunar cartilages was frequent and to them such a joint was useless without excision of the loose body; he then gave rest for a month and got good results. When there was a definite organic injury to a joint rest was essential. He thought that elastic pressure was good. He noted a curious case of severe pain in the wrist following on strain without obvious defect; he thought neurosis might account for it and he had procured relief by heroic doses of the interrupted current.

Mr. HOWARD MARSH, in replying, said that he believed in elastic pressure; probably there was only support of relaxed vessels and so prevention of effusion. As regards quite early movements he was at issue with Mr. Morison. In some 80 to 90 cases of excision of the semilunar cartilage he had removed the splint in about a week when the wound was healed and commenced massage to the muscles. In the next week active movements were allowed, and in the succeeding two or three weeks the patient was up and about, so that in two months he was at work again. So with the patella, but in this case he did not allow the patient out without a knee-support for two or three months. Replying to Mr. Burghard, he thought that all adhesions should be broken down at one time. He agreed with Dr. Cousins regarding antisepsis and with Mr. Barling regarding the connexion of sprains with loss of muscle-tone. In cases of slipping of the semilunar cartilages of the knee massage should be adopted and never plaster supports. He believed in splintless Colles's fracture treatment; in cases where such fractures turned out badly it was not from deformity *per se* but from matting of structures.

Mr. F. F. BURGHARD read a paper on

The Treatment—Non-operative and Operative—of Congenital Dislocation of the Hip.

At the outset he deprecated sweeping statements regarding this deformity, different conditions requiring different measures. Discussing the anatomical features of the state he said that the dislocation on the dorsum ilii was not so invariable as was thought; it might succeed a much slighter displacement under the anterior superior iliac spine. The increase in the angle made by the long axis of the femoral neck with the transverse axis of the condyles was increased from a normal of from 25° to 30° to as great as from 100° to 150°; this twisting was such that the limb was rotated inwards when the head was properly in the acetabulum. The diminution of the angle of the neck with the shaft of the femur from a normal of from 110° to 140° to as little as 90° was proportional with the length of time during which the child had walked. A point which was noted by Hoffa, to which was due the ultimate failure of apparently successful operations, was the hour-glass shape assumed by the capsule, owing to the passage over it of the ilio-psoas tendon, and the exceedingly dense, unyielding character of the part over the acetabulum owing to the thickening of the capsular bands. The treatments by the apparatus of Hoffa, of Hoffa-Mikulicz, and of Schede were discussed and their insufficiency was shown. The bloodless or extension method of Lorenz was also shown to be in the majority of cases a failure, even in the hands of its author. Of the operative measures he gave his experience of Hoffa's, Lane's, and Paci's methods, their indifferent success, and stated his belief that the cause of this in many cases was that the head of the bone must lie over the acetabulum with a portion of the capsule or even ligamentum teres interposed between it and the bone. In several cases it was impossible to force the head of the femur through the narrow capsular constriction referred to without enlarging the orifice. He described a mode of operation which had been attended with much success. At a preliminary sitting the femur was freed sufficiently to get the trochanter down to Nélaton's line and for abduction to 90°. By a curved incision the fascia and tensor vaginæ femoris were freed from the ilium, the limb was rotated outwards, and the capsule was incised parallel and internal to the anterior spiral line. The tendon of the ilio-psoas was freed and the attachment of the capsule to the front of the acetabulum and the rectus tendon was also freed; now on manipulation by Lorenz's method the head at once entered the acetabulum. All that now remained was to excise an elliptical portion of the redundant anterior part of the capsule, which was tightly sutured by catgut, and the joint was stable. The deep structures were united by one or two catgut sutures. The limb was put up in a form of Croft's plaster splint and after a month a skiagram was taken, when it was seen that the head of the femur was in excellent position. In six months the child was allowed to walk with a thick sole on the sound side and now, 18 months after, the child was perfectly cured and the

head of the bone was in place. Four other cases had been operated on with equal success; all of the patients were under six years of age. He noted the necessity of selection of cases and their early recognition and treatment. He concluded with a classification of cases in groups arranged according to the applicability of the various methods of treatment described.

Mr. HOWARD MARSH said that he had felt the unsatisfactoriness of such cases though the operative procedure that had been described that day helped matters on very satisfactorily. He remarked that a case which had been much vaunted as a cure by extension had been submitted to him without his knowledge of the previous history; he had found the condition to be that of an absolutely untouched congenital dislocation. He agreed to the frequency of dislocation under the anterior superior spine. If the head was fixed in a pseudo-joint and was not sliding he thought that operation would do no good; it was urgently necessary where there were much displacement upward and backward and a sliding condition, here patients were hopelessly lame. He remarked that the ill-development of the limb and muscles of such cases was a great drawback and he noted one feature of the paper—the definite examination of the anatomical condition and the operative treatment accordingly.

Mr. R. H. A. WHITELOCKE read a paper on

A Case of Hydatid of the Right Pleura successfully treated by Operation.

The case was that of a woman, aged 28 years, a resident of Abingdon. Symptoms of pleurisy appeared in March, 1900. In June a swelling appeared in the eighth right intercostal space. In July she was operated upon, parts of two ribs were resected, and the cavity was opened and drained; the fluid was straw-coloured and contained cysts. Cysts were discharged from the wound until December, when Mr. P. Martin secured the edge of the mother cyst and drew it out entire. The points of the case were: the patient had never been out of England; the rarity of cases under such circumstances and especially of infection of the pleura; also the complete absence of pulmonary symptoms.

Dr. J. MICHIE (Adelaide) had frequently seen similar cases in Adelaide; it was not uncommon to get long-continued discharge of the daughter cysts.

Mr. JAMES RANKIN (Kilmarnock) read a paper describing an operation for

Senile Gangrene

in a man, aged 72 years. There was a rapidly spreading gangrene of the foot spreading from around an ingrowing toe-nail. The leg was amputated by Stephen Smith's disarticulation at the knee by lateral flaps. The result was perfect. The old man devised his own pin-leg and contemplated returning to work.

Mr. R. C. CHICKEN (Nottingham) read a note and showed a specimen of

Loose Bodies from the Knee-joint.

The case had been undiagnosed for a long time and was supposed to be old-standing disease of the joint. He suspected loose bodies, opened the joint and removed 67 soft cartilaginous loose bodies, weighing together one ounce. He was inclined to think that loose bodies were more frequently multiple than single.

Dr. ELIZA L. WALKER DUNBAR (Bristol) read a paper on

Reducibility of Long-standing Dislocations.

The paper described a case of partial dislocation of the right hip-joint which, after existing five years, was reduced without difficulty under anæsthesia, showing that the joint had in no way become blocked. The patient was a woman, aged 31 years. A skiagram of the case was shown. The symptoms were greater length of the leg by half an inch, absence of power by everting the foot, insecurity in standing and walking, requiring assistance of a staff, and pain after exertion. Reduction was followed by great relief and free use of the limb. During three years since reduction dislocation had threatened three or four times and movement had been somewhat impeded until passive movements—the necessity for which had been impressed on the patient at the time of treatment—were carried out; this restored the normal condition. Another case, one of rarer occurrence, was partial dislocation of the right sacro-iliac joint. The dislocation had existed for six years, causing incessant discomfort and acute pain after rising from a sitting posture and in turning round when lying down. The patient was a woman, aged 32 years. The dislocation, which was shown in a skiagram, had been produced by lifting hastily a heavy scuttleful of coal. It was reduced under anæsthesia as shown by a skiagram and kept well in place with complete relief for 15 months. Then one day after walking upstairs the patient thought that she felt the joint give way. Pain did not come on for 14 days, when the old discomfort set in. The dislocation was reduced again as soon as the patient applied for advice. The relief was quite perfect. Both cases were treated without splint or bandage. The first was massaged, whilst passive and active movements were carried out from the first day for one month. The second case was dismissed in 10 days.

STATE MEDICINE.

FRIDAY, AUGUST 2ND.

The final meeting of this section commenced with the reading of some notes by Mr. J. A. WANKLYN (London) upon

Recently examined Arsenical Beers.

He held that the failure to recognise the presence of arsenic in beer to a great extent depended in the recent arsenical epidemic on the abandonment of the original Marsh's process and on the protean powers of combination possessed by arsenic. It was known that two grains of arsenic in the shape of arsenious acid had proved a fatal dose, but 15 grains of arsenic in the shape of cacodylic acid or cacodylate of soda were not fatal, and, indeed, had been taken without manifest ill effect. Mr. Wanklyn exhibited specimens of cacodyl and cacodyl red pigment and mentioned that they were extremely rare.

Dr. T. M. LEGGE (Inspector of Factories) addressed the meeting on the subject of

The Diseases of Occupations.

He said that the anomalies in trade diseases—viz., the difference of the symptoms produced among workers making or using poisonous materials from those produced by their medicinal exhibition—were very striking. The manufacture of potassium cyanide, for example, appeared to be almost if not quite innocuous. In the manufacture of potassium bichromate the lesions were limited. There was no evidence that chromic acid dust penetrated to the lungs. Amongst workers with arsenic the symptoms of neuritis were absent. In hatters' and furriers' processes, where rabbit skins were brushed with nitrate of mercury, salivation was rare, though tremor was a prominent symptom, and there was in addition marked erosion of the teeth due to the acid fumes. There had been given no adequate explanation why the continued inhalation of the fumes of yellow phosphorus should be limited to the maxillary bones, for satisfactory evidence was lacking that anything in the nature of phosphorism was produced. In regard to anthrax workers in wool, horsehair, and hide industries seemed to bear an almost charmed life. If the contention were right that the incidence of tetanus on jute workers was due to spores imported in incredible numbers it was surprising that cases following on lacerated wounds in jute mills were not more frequent; that must be attributed to the natural immunity of the human subject to tetanus. In factories where lead was used it was right to be on guard against attributing every case of anæmia in youthful workers to their employment. One of the most difficult points in industrial disease was to estimate rightly the effect of the inhalation of dust on the lungs and the relation of fibroid phthisis to true phthisis. With the exception of mineral dust containing a high percentage of silica, steel dust, flax, and of a few others evidence had not been made very clear of injury to the lungs from many kinds of dust. Attention was called to the pneumonia induced by the inhalation of basic slag dust; there was nothing in the composition of the dust apart from its fine division to render it particularly injurious. Referring to the notification required of every case of lead, arsenic, phosphorus, or mercurial poisoning, and of anthrax contracted in a factory, Dr. Legge pointed out that medical practitioners who notified cases of lead-poisoning from drinking water or in a house-painter engaged entirely in outside work might think it pedantic to draw a distinction between notifiable and non-notifiable lead-poisoning, but the whole point of the distinction was to obtain a clue only to those

cases in premises under the Factory Act. In lead-poisoning it might fairly be assumed that each case on an average entailed an absence from work for one week, and the absence from work from the effects of lead alone during last year if compressed into the life of a single man would mean absence from work for 19 years. The proportion of severe cases of lead-poisoning among file-cutters and those engaged in coach painting, in ship-building, &c., exceeded that of those engaged in industries where the danger was primarily from the dust of salts of lead. The official reports brought out the fact that saturnine palsy was essentially an affection of the male sex, while headache, anæmia, and encephalopathy were more common in the female sex. Notification had been especially useful in obtaining knowledge of sources, hitherto unsuspected, in which mercurial and arsenical poisonings were likely to arise. Anthrax was, however, the most protean in its manifestations of all trade diseases and was the most difficult to control. Disinfection by steam of horsehair in hydraulicly pressed bales was impossible. In the cases of anthrax which had been notified one point was noteworthy. The accepted treatment was excision of the pustule as soon as it was diagnosed; in country districts there was reluctance to operate and treatment was limited to the application of caustics or hypodermic injections of pure carbolic acid, and it had to be admitted that that treatment had been successful. In one country village five successive cases had recovered without operation, but, on the other hand, in Bradford and Sheffield fatal cases had as a rule been those in which there had been delay in having the pustule excised. All accurate knowledge of the symptoms and the effects of the diseases of occupations must come from the medical profession and by the writings of medical men great assistance had been rendered in pointing out the dangers attaching to various occupations. Though he had never yet come across a certifying surgeon who was not interested in his work it had appeared to him that as a body they were lacking in *esprit de corps*.

Dr. W. MURRAY (Birmingham) contributed a paper on

Chronic Brass Poisoning.

He said that too little attention had been paid to the poisoning that affected many persons engaged in the manufacture of raw brass. Though "brass-founder's ague" had been known a long time the far commoner cases of disease from prolonged absorption of brass dust had attracted little notice. The state of unhealthiness produced in brass working presented a uniformity in its train of symptoms that suggested the action of a specific poison producing a specific disease. The illness was ushered in with anæmia and malaise and as the disease progressed the complexion assumed a sallow appearance and emaciation became a prominent feature. Muscular tremors occurred and the digestion was impaired. There was a metallic taste in the mouth and the breath emitted a disagreeable metallic odour. Nervousness, faintness, profuse sweating, and cold sensations were very troublesome features. The indication of copper absorption—viz., a green line at the bases of the teeth—was present in all these cases. The sweat might have a greenish tint and this colour was sometimes very marked in the hoary hair of old workmen. Skin symptoms were sometimes produced from the brass dust or the irritative action of the sweat impregnated with copper salts. To diagnose this disease from consumption the chest on examination showed no lesion that was discoverable except occasionally a bronchial catarrh. Some authorities said that the disease was caused by copper, others by zinc, and it had been attributed to lead and arsenic as impurities, but that was visionary. The symptoms of brass poisoning were not those of lead or arsenic poisoning. Pseudo tabes had been recorded as resulting from brass absorption, but the symptoms were easily differentiated from the typical symptoms of brass poisoning. There was sufficient similarity between poisoning by copper and by brass to justify the hypothesis that copper was the principal metal at fault in disease from brass poisoning. The poison gained ingress by the digestive and respiratory tracts, the fine dust setting up respiratory affections ending in fibrosis of the lung. In the stomach the dust was acted upon by the gastric juice yielding soluble salts leading to the general condition. The dust was ingested by taking food with unwashed hands or in the work-rooms. The treatment recommended by Dr. Murray was phosphorus one-thirtieth of a grain in pill or phosphoric acid coloured and flavoured. It was to be regretted that the special rules applied to the casting and mixing shops were not applied to the other departments of brass working. At least the free dust in the workroom should be reduced to a minimum, efficient ventilation should be provided, cleanliness on the part of the workers should be enforced, and eating in the workshops should be prohibited.

Mr. H. D'ARCY ELLIS (Stourbridge) communicated a paper on

Glass Polishing.

Glass polishing, Mr. Ellis explained, was the final stage of glass cutting. The glass cutter polished the glass on which he had himself cut designs and used a mixture for polishing known as "putty powder." From the use of this powder cases of lead-poisoning arose. A good putty mixture contained—lead, 112 pounds; tin, 25 pounds; antimony, three pounds; and bismuth, from two to three ounces. The "putty powder" for large glass work was dabbed on a revolving polishing wheel, but for very fine work the powder was applied by brushes. In some cases a boy stood in front of, and at the side of, the brush to apply the putty powder and was splashed with the mixture flying off the brush. This was the most dangerous period, in the opinion of the workman. After the polishing of the glass by the putty, girls were employed as "wipers-out," and some of these had been known to suffer from lead-poisoning. Mr. Ellis then proceeded to relate illustrative examples of cases, fatal and otherwise, of lead-poisoning which had occurred in his practice from the putty powder. It was a serious thing to advise a man to give up the only trade by which he could earn a living. His chance of earning a living at any other occupation was generally extremely small. The isolation of every susceptible worker was an extreme remedy which would be strongly resented. The obvious remedy was to find the minimum of risk and endeavour to enforce its application. In consequence of legislation already in operation the cases of lead-poisoning had diminished, practically leaving only the chronic cases. To the question, Could anything more be done? Mr. Ellis replied that greater attention to detail was all that was needed, personal cleanliness, ventilation, and tidiness in the workshop. A separate apron should be worn at the putty frames which were now used at the wheels and taken off when the polishing was finished.

Mr. W. F. DEARDEN (Manchester) delivered an address on

The Causation of Phosphorus Necrosis.

During the last 20 years it was known that 102 definite cases of phosphorus necrosis had occurred in this country. There were two varieties of matches with which they were particularly concerned—the English or paraffin dip match and the Belgian or sulphur dip match; the latter was on the continent popularly termed "stinkstecher." The fulminating composition for this latter contained 30 per cent. of yellow phosphorus, the English match contained about 5 per cent. The dangerous parts of the manufacture were the mixing of the phosphorus paste and the dipping, drying, and boxing of the matches. The paste was usually mixed in a steam-jacketed pan with a removable lid, the dipping was done by pressing the matches on to the mixture spread out on a heated slab, the drying was effected by placing the matches in a heated chamber, and the boxing was carried out by girls and women. The dangerous factor in the processes was the giving off of fumes of the lower oxide of phosphorus (P_4O_6) from the moist heated paste in the mixing, dipping, and drying departments and from the moist heads of the matches when in a proper condition for boxing. This lower oxide of phosphorus mixed with the saliva in the mouth and was also inhaled directly into the lungs. The soiling of the hands and clothes with the paste also constituted a certain amount of danger. Mr. Dearden agreed with the opinion of Lorinser that the fumes exerted their evil office by the blood becoming surcharged with phosphorus, which in turn had an affinity for bone, and as a consequence weakened the resisting power of this tissue to local injury, this local injury in the case of the jaw-bone being supplied through the medium of a carious tooth. Mr. Dearden reviewed the arguments that constitute presumptive evidence of the existence of some systematic predisposing influence as a necessary adjunct to the local excitation. In giving the positive evidence of a more general action exerted by phosphorus on the tissues Mr. Dearden mentioned that it was perfectly evident that in the course of years a comparatively large amount of the fumes must be inhaled into the lungs and that phosphorus or some combination of this drug must by that means get into the circulation. He had noticed the characteristic odour in the breath of girls several days after they had been suspended from work under the special rules. The condition brought about by the mild saturation of the system with some compound of phosphorus predisposing to necrosis of the jaw influenced bone-tissue

generally and was chemical in its nature. It had been concluded that bone formed in young people working at phosphorus was much denser in character than it would otherwise be. It was therefore to be held that changes did take place in bone-tissue from inhalation of phosphorus fumes, and it was reasonable to explain "phossy jaw" as arising from local irritation through a carious tooth acting on bone already damaged as the result of a general infection. The principle upon which all general precautions must be based aimed at a minimum exposure of the worker to the fumes, thus preventing the general infection of the system, and personal hygiene for the avoidance of local irritation by procuring as perfect a condition of the teeth as possible.

Dr. G. REID (Stafford) read a paper on the

Infant Mortality and the Employment of Married Women in Factories.

Dr. Reid, after discussing the prominent place which must be given to ignorance on the part of mothers regarding the essentials of infants' diet as one of the factors for the continued high rate of infant mortality, passed on to the question of the marked difference in the infant mortality rate of the northern and southern towns of the county of Stafford. The northern towns in question contained large numbers of married women engaged in factories. He classified the purely artisan towns in the county into three groups: (1) many married women workers; (2) a good number of married women workers; and (3) practically no married women workers. He found that the diversity in the infant mortality rate based merely upon the geographical division was intensified, and that there was a very marked gradation in the rate which accorded with the relative proportion of married women workers. There had been a general increase in the infant death-rate in recent years and practically the same relative proportion had been maintained in the three groups of towns. They had to devise means for wiping out an increase in the infant mortality of nearly 27 per cent. in those artisan towns in which married women were largely engaged in factory labour. Would it be unreasonable to have a condition made in such cases that the child should during the absence of the mother be placed under such care as should afford a reasonable prospect of its wants being provided for? The present law imposed certain restrictions, but those in effect benefited the mother rather than the child. It was illegal for the mother to return to work within one month of her confinement, but it was hardly likely that she would commence suckling her child if she intended to engage in work again after so short a period. Dr. Reid suggested that this time limit should be extended to three months because the probability was that the mother in most cases would then suckle her child until she returned to work and thus the most precarious period in the life of the child would be tided over and the chances of subsequent survival would be considerably increased. Dr. Reid concluded by advocating the establishment of *crèches* by local authorities.

Dr. C. A. GREAVES (Derby) communicated a memorandum, entitled,

Plumbism Cases in Carriage Works.

Dr. Greaves had reported 60 cases of plumbism in the last three years, of which number 42 cases were in carriage-building works. 14 of these were workmen not employed in the paint-shops but working as coach body-makers. They used a good deal of paint for coating the parts of the wood-work and some white lead to fill in crevices. A point which he considered of importance was the advisability of clearing the nasal passages by blowing the nose well before meals, as he had found reason to believe that the workmen who had to burn off old paint were liable to take in a good deal of volatilised lead in the fumes and dust which they inhaled. Dr. Greaves protested against lemonade being considered a preventive of plumbism; the fallacy arose because a drink containing a dilute sulphuric acid forming an insoluble sulphate of lead had been foolishly called lemonade, whereas real lemonade contained citric acid which was useless, because citrate of lead was fairly soluble. He had seen a few cases of plumbism in brass-finishers traceable to the filing of soft brass castings containing as much as 5 per cent. of lead.

Dr. C. R. DRYSDALE (London) contributed a paper on

Lower Birth-rates considered as the Real Cause of Lower Death-rates.

Dr. Drysdale quoted statistics to show that the high death-rates of the poorest classes were due to their very high birth-rate, which forced them to crowd into purlieus and exposed them to semi-starvation. He considered himself entitled to say that the real cause of high death-rates in this country were high birth-rates, and that if they really wished to improve the health of the classes at the bottom of society they must in future endeavour to persuade them to have families of not more than four children as a maximum, or, better still, to content themselves with two children or thereabouts until the mortality of the worst-paid classes should fall to 12 per 1000, the present death-rate in well-to-do Hampstead.

Dr. A. K. CHALMERS (Glasgow) proposed and Dr. G. REID (Stafford) seconded the following motions which were carried:—

That this section expresses its satisfaction with the provisions in the Factory and Workshop Bill now before Parliament which requires the medical officer of health of every district council in his annual report to them to report specifically on the administration of the Factory and Workshop Act and to send a copy of the report to the Secretary of State for the Home Department.

That inasmuch as notice has been given of amendment of the provisions referred to, the effect of the amendment being to put this duty on other officers than the medical officers of health, and inasmuch as such reports will deal with questions affecting the health of the workers, the section recommends the Association to adopt the above resolution and to communicate it to the Secretary of State for the Home Department.

The work of the section concluded with the reading of a paper by Mr. P. TARGETT ADAMS, late assistant port health officer at Bombay, on

Port Sanitary Administration and the Control of Plague in the Port of Bombay.

Mr. Adams described the methods adopted at Bombay for the preventing of the spreading of plague to ports out of India. No small measure of praise was due to Colonel Macartie and Major J. Crimmin, I.M.S., V.C., for so far preventing the extension of plague from a city saturated with the infection of plague and in such constant intercommunication with ports all over the world and Europe in particular. He believed he was correct in saying that from the port of Bombay plague had rarely been shown to have been imported at all and in no case by means of rats. In those few cases in which importation in a sporadic form occurred it had been due to the conveyance of the infective material from Bombay by means of infected clothing or an infected patient. Important as the transmission of plague by means of rats and their parasites was it was equally necessary to remember that filthy clothing charged with moisture and organic matter and stuffed into a filthy box in the very warm atmosphere of a forecastle was probably as dangerous and certain a means for the successful importation of plague as the rat and its fleas.

The proceedings of the section terminated with a vote of thanks to the President, Mr. Shirley Murphy. In the passing of this vote of thanks Mr. W. C. C. PAKES (London) pointed out that the President had never delegated the chairmanship for one instant during the whole course of the meeting.

PSYCHOLOGICAL MEDICINE.

FRIDAY, AUGUST 2ND.

Dr. FRANCIS WARNER (London) opened a discussion on

The Diagnosis and Treatment of Feeble-minded Children.

The Elementary Education (Defective and Epileptic Children) Act of 1899 had directed attention in many quarters to the necessity of provision for the care and training of children of defective brain-power. The Act was permissive and the children to be provided for were defined as not imbecile and not merely dull or backward, but defective—that was to say, children who, by reason of mental or physical defect, were incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but were not incapable by reason of such defect of receiving benefit from instruction in special classes or schools as were in the Act mentioned, &c. There was great need of a wider knowledge and study of defective children so that the mental physician might be able to afford help to parents and teachers. Of the school children between the ages of three and 13 years in England it was estimated that about 1 per cent. were feeble-minded. In the diagnosis of brain-defect they had to look for certain signs—e.g., developmental and physiognomical features, nerve-signs or attitudes and movements, the condition of the organs of special sense, and the state of general bodily health. In the process of examining and questioning the child some general estimation should also be made of its

mental grade. The volume and shape of the head, irregularity and asymmetry of the skull, disproportion between cranial and facial development, defective development of the nares and palate with obstruction of nasal breathing, malformations of the ears, eyes, and mouth, were all significant. In the face expression might be wanting, twitchings of the muscles and "tics" might be conspicuously present, an incapacity for fixation of the eyes and of attention, and a lack of control and coördination in the movements of the hands might be observed. Spontaneity of movement, which was so essentially characteristic of normal children, might be wanting and might be replaced by monotonous grinning, grimaces, athetoid movements, shruggings and swayings of the body, and the like. Emotional reaction to a stimulus might be excessive, as in chorea. It was the coördinated movements seen, first under direction, but later as a self-contained power, that mostly indicated good brain power. As regarded treatment the aim was to remove abnormal nerve-signs and to promote the normal processes of spontaneity and controllability of movements—i.e., to implant modes of action and response which were essential to self-help and social life. Play, games, general activity, and the prevention of loafing encouraged spontaneity and variety in movements and tended also to remove the awkward habits or repetitive "automatic actions" which were frequent among defective children. Imitation of the teacher's movements was most useful in early training, far more so than clay modelling and drawing. Exercises in hand and finger movements cultivated facility for mental action and the appreciation of numbers. Writing should follow as a natural sequel. Eye movements needed training to bring them under such control as was necessary in acts of attention. The cultivation of the muscular sense in estimating the weights, sizes, and shapes of objects, and in comparing and contrasting objects was a point of the highest practical importance. Speech and articulation should be taught by close imitation of the teacher's method of producing elementary sounds, and breathing exercises should be practised as an aid to voice-production. The recognition and naming of colours and the reading of time by the clock would often be learnt by practice. Myopia or deafness should be corrected. Obstructions in the nose and throat might be a cause of stupidity.

In the discussion which followed the above paper,

Dr. G. E. SHUTTLEWORTH (Richmond) said that in drawing conclusions too much stress should not be laid on any *single* sign. Regard should be had to physiognomy, developmental features, nerve signs, defects of bodily nutrition, and the manner of response to questions or orders. Idiocy, imbecility, and weak-mindedness were three grades of mental defect which shaded into each other. If marked mental incapacity and faulty habits existed so that the child was regarded as more properly requiring medical care and nursing supervision it was better to certify such a case as imbecile, which would exempt the child from school and help to gain his admission to an asylum for imbeciles, where, in addition to medical care, training suitable to the case would be applied. Defective children of the "Mongol" type were found by experience to be imbecile and incapable of benefiting by instruction, especially as in many such cases marked incapacity for instruction was present though they had imitative tendencies in some degree. Children with inherited syphilis proved unsatisfactory pupils as a rule, and most unsatisfactory of all were children of the morally defective type. Imitation of the teacher was useful, but the teacher should not be fatigued and worn out or he would be a bad model.

Dr. F. M. POPE (Leicester) believed that conversation with the child for a few minutes would afford a more correct estimate of its capacities than the examination of its physical "stigmata" or defects.

Dr. FLETCHER BEACH (London) was of opinion that the arrangements made in London, Leicester, and other towns for the education of feeble-minded children should be extended throughout the country. As regarded moral imbeciles, they were very difficult to deal with. They were unsuitable for schools and should be placed in special institutions, as recommended by Morel of Belgium. If permitted to be at large they propagated illegitimately and produced a vicious criminal and neurotic offspring.

Dr. HENRY ASHBY (Manchester) thought that only the better class of defective children should be sent to special schools, as children on the borderland of imbecility were unsuited.

Dr. LLOYD ANDRIEZEN (London) emphasised the importance of developing the kinæsthetic activities (manual and industrial training), and the excellent results obtained at Elmira and other places in the treatment of young adult criminals and defectives between the ages of 16 years and 30 years by perseverance in this. He cited instances of "tics" and faulty habits being acquired by children imitating their mothers, &c., and was of opinion that special institutions for moral imbeciles and lower grade degenerates were necessary if they were to treat satisfactorily such cases, which were unsuitable in school and dangerous to the community at large if allowed to go about to breed offspring of an insane or mentally or depraved kind.

Dr. EDWIN B. ANGELL (Rochester, New York) referred to the significance of the anatomical stigmata of degeneracy and to their importance when several were present in any child. At Bicêtre, Paris, he had seen remarkable results for good in the long-continued and persevering teaching and training of imbeciles which Dr. Bourneville adopted.

Dr. T. CLAYE SHAW (London) read a paper on

Colitis or Asylum Dysentery.

He contended that only a certain small proportion of cases of colitis were primarily of bacterial origin and that ulceration of the mucous membrane of the intestine was commonly met with in the insane and was a trophic degeneration dependent upon the low nervous vitality of the patient, and that such ulcerations might be comparable to bed sores. The disease known as asylum dysentery seldom affected the medical or nursing staff of asylums. The continued occurrence of colitis in asylums did not imply that sanitation was bad in the wards and buildings where it occurred and cast no discredit on the medical or administrative staff.

In the discussion which followed,

The PRESIDENT (Dr. J. B. SPENCE, Lichfield) asked how the prevalence of colitis in asylums that had only been recently constructed could be explained.

Dr. LLOYD ANDRIEZEN agreed that two factors were possible in the production of ulcerations of the bowels generally in insane patients—namely, infection and trophic degeneration. Colitis, however, was a special form characterised by the presence of blood, mucus, more or less extensive sloughings of the mucous coats of the large bowel, and intense tenesmus.

Dr. EDWIN GOODALL (Carmarthen) believed that while some cases of asylum diarrhœa were not due to dysentery, others were of a specific dysenteric character. He believed that overcrowding was by no means proved to be the cause.

Dr. HARRY CAMPBELL (London) asked whether the eliminations of toxins from the blood into the alimentary canal might not be a cause of ulceration of the mucous membrane of the bowel and whether right-sided colotomy would be advisable.

Dr. J. G. HAVELOCK (Montrose) had seen outbreaks of diarrhœa, but not of colitis, at Montrose Asylum. He thought that the ulcerations and bowel lesions of dysentery were the result of nerve degeneration.

Dr. R. H. STEEN (Chichester) contributed a paper on Modern Plans in Asylums, referring more particularly to such matters as the provision for bathing, dining rooms, and as to the dispositions of the wards, whether they should be aggregated or built in detached blocks on the villa system.

Dr. LLOYD ANDRIEZEN contributed a paper on the Psychology of the Degenerate with remarks on Treatment.

The meeting of the section then closed with a vote of thanks to the President.

PATHOLOGY AND BACTERIOLOGY.

FRIDAY, AUGUST 2ND.

Mr. ALEXANDER G. R. FOULERTON (London) and Mr. W. T. HILLIER (St. Albans) communicated a paper on

The Condition of the Urine in Tuberculous Infection.[1]

Specimens of urine from 25 cases of chronic pulmonary phthisis in the third stage had been examined, the presence of bacillus tuberculosis in the sputum being verified in each case. Six chemical examinations were made of the daily secretion in each case. Albumin was absent in 16, present in small indefinite quantities in eight, and present as more than

[1] Towards the expenses of this research a grant was made by the British Medical Association on the recommendation of the Scientific Grants Committee of the Association.

a trace in one. The albuminuria in the eight cases in which traces only were found was irregular in its occurrence, not being constantly present in any of them. Accurate estimations of the urea excretion were made in eight cases, and the daily amount was found to vary within wide limits in different cases; the authors had not been able as yet to correlate excess or deficiency in the daily urea excretion with any clinical conditions in these cases. The urine had been tested for the diazo reaction in every case, and the reaction was obtained in four out of 12 cases in which the patients had died whilst still under observation, and in three out of 13 cases in which the patients were discharged from hospital alive. As in the case of the albuminuria, the obtaining of the diazo reaction was not constant in any of the seven cases, being in evidence on one day and not on another. Generally this reaction appeared to be more frequently obtained in chronic pulmonary phthisis the nearer the case was to a fatal termination, their results in this respect confirming what had been stated by Penzold, Petri, and others as to the occurrence of this reaction, indicating an actively progressing stage of the disease. A bacteriological examination was made of six samples of the daily secretion from each case, 200 cubic centimetres of each sample being centrifugated for 20 minutes, and cover-glass specimens, six from the sediment of each 200 cubic centimetres, being stained and examined for bacillus tuberculosis. In only one case was the specific bacillus found by this microscopical examination, and that case was the only one in which tuberculosis of the kidney itself was found after death. In 18 of the 25 cases the urine was tested by the inoculation of guinea-pigs, two animals being inoculated from the sediment of one or more samples from each case. The results of the inoculations were as follows. Of eight fatal cases which were examined post mortem inoculation of the urine was followed by tuberculous infection in the guinea-pig in six, whilst of 10 cases in which the patients were still alive when last heard of the urine infected the guinea-pig in three. In the one case in which tubercle bacilli were found microscopically in the urine tuberculous nodules were found in the kidney after death. But in this case the animal inoculations failed from early death of the guinea-pigs. Thus, of 18 cases of pulmonary phthisis in which there was no reason to believe that there was any local tuberculous infection of the kidney, and in eight of which post-mortem examination showed that in fact there was not any, the presence of bacillus tuberculosis in the urine was proved by the inoculation of guinea-pigs in nine, or just 50 per cent. At the same time the results of the animal inoculations showed that in most of the cases the bacilli were present in very small quantities indeed, in some instances one out of a pair of guinea-pigs inoculated from the same specimen of sediment escaping infection. Also the probability of finding the bacilli by inoculation increased as the case came towards the end. Other experiments bearing on the possible toxicity of the urine in these cases were carried out.

Dr. C. J. N. LONGRIDGE (London) read a paper on

Focal Necroses of the Liver.

The occurrence of small areas of altered or degenerated cells in the liver in cases of typhoid fever were quoted as examples of local necrosis; the causation of the lesions by the action of toxins rather than by the direct action of the bacilli themselves was considered, and the possible relation of this focal necrosis to cirrhosis of the liver was discussed. The changes found in the liver in cases of puerperal eclampsia were then dealt with and the supposed antitoxic functions of the gland were referred to. Duodenal ulceration at a point on the walls just opposite to the opening of the bile-duct was, Dr. Longridge suggested, caused by the irritation of toxins which were being eliminated with the bile. These cases of focal necrosis were, then, the result of the action of toxins on a gland which was in the process of eliminating them. As examples of similar destruction of a tissue which was in the act of eliminating toxins Dr. Longridge quoted ulceration of the intestine in albuminuria and duodenal ulceration in cases of extensive burns.

In the discussion which followed the reading of Dr. Longridge's paper the PRESIDENT (Dr. J. W. WASHBOURN) said that the multiplication of bacilli in the tissues after death had perhaps led to an exaggerated idea of their influence in producing focal necrosis. He himself agreed with Dr. Longridge that such lesions were more frequently the result of a general toxæmia affecting special tissues. Ulceration of the large intestine in those who had taken quantities of mercury was perhaps the result of the elimination of the poison by the glands of the intestines. He thought that cirrhosis of the liver might in some cases result from a fibrosis following infective neuroses.

Dr. W. S. LAZARUS-BARLOW (London) doubted the frequency at the present day of duodenal ulceration in cases of burns. He had not himself met with such cases, but still there were undoubted specimens in museums illustrating the condition. He then referred to the bacterial causation of cirrhosis and to the pathology of albuminuric ulceration of the intestine.

Mr. A. G. R. FOULERTON thought that the direct action of bacteria in producing these focal necroses could not be ignored in every case. Such foci might be found crowded with bacteria in specimens prepared from the livers of experimental animals when the tissues had been put in alcohol immediately after death, and there had been no opportunity for post-mortem multiplication of the organisms; then, too, he thought that Hektoen's work on bacterial cirrhosis of the liver clearly showed that a bacterial necrosis did actually occur sometimes.

Dr. A. S. GRÜNBAUM (London) thought that duodenal ulceration in cases of burn was due to toxins which were being eliminated; the fact that such ulceration was rarely observed at the present time was probably due to improved antiseptic treatment of such cases.

Dr. LONGRIDGE then replied.

Dr. LAZARUS-BARLOW read a paper on

Typhoid Fever without Intestinal Lesions

The number of cases in which typhoid fever without intestinal lesions had been recorded was exceedingly small, probably not more than 20 in all, and of those 20 cases the absolute scientific proof by isolation of the specific bacillus had probably not been afforded in more than six. During recent years the specific agglutination test had given them an additional method of diagnosis in these cases. The case which Dr. Lazarus-Barlow now referred to more particularly was that of a child, aged 13 months, who died in the Westminster Hospital. The patient was one of a family of seven individuals living in one house, of whom six were attacked by typhoid fever. All six patients, including the child, gave a definite Widal's reaction and the clinical symptoms of typhoid fever were generally well marked in all. The patient now referred to died on the twenty-fifth day of his illness. His serum on the seventeenth day had given an agglutinative reaction with the typhoid bacillus with a dilution of 1 in 50 immediately and of 1 in 100 within 25 minutes. There were "rose spots," diarrhœa, bronchitis, and abdominal distension; the spleen could not be felt. The post-mortem examination was made within 12 hours; there were found bronchitis, bronchopneumonia, and pulmonary collapse; the spleen was firm and somewhat enlarged. There was no other macroscopical evidence of disease; the intestinal mucous membrane was normal in every respect. From the spleen cultures of bacilli of the bacillus coli communis type and also bacillus typhosus were isolated. The specific bacillus isolated was submitted to the usual culture tests and its identity was proved. With the serum of a horse artificially immunised against typhoid infection the organism gave a good agglutinative reaction, a dilution of 1 in 200 being used.

The PRESIDENT referred to a case in a child under his care which had run a very similar course and in which no lesions had been found in the intestines after death; with the use of Widal's reaction such cases would now probably be more frequently diagnosed than formerly.

Dr. J. H. BRYANT (London) also referred to the President's case and gave particulars as to the bacteriological diagnosis.

Professor MICHELL CLARKE (Bristol) referred to two cases of typhoid fever in which ulceration of the large intestine only was present.

Dr. LAZARUS-BARLOW in his reply suggested the possibility of some of the cases of summer diarrhœa in children being really slight cases of typhoid fever.

A paper by Mr. A. W. NUTHALL (Southsea) and Dr. W. HUNTER (London) on

The Bacteriology of Cerebro-spinal Meningitis

was read in the absence of the authors. A series including 10 cases, nine in children and one in an adult, in which lumbar puncture had been performed, were examined bacteriologically. From each of these cases a diplococcus had been isolated which presented certain morphological and

biological characteristics. The diplococci isolated from the 10 cases fell into two types, A and B. In the former type the staining by Gram's method was indefinite and usually negative; in type B the stain gave a positive result. There were also differences in the growth of the two types on various media used. In no case did experimental inoculation of mice, guinea-pigs, or rabbits give a positive result. The diplococcus was isolated in pure culture in four only of the 10 cases. The conclusions to which the authors had come were: (1) in 10 cases of meningitis a diplococcus was isolated from the cerebro-spinal fluid obtained by lumbar puncture during life; (2) this diplococcus agreed in its morphological and biological characteristics with the diplococcus intracellularis meningitidis of Weichselbaum; (3) the diplococcus occurred in two slightly different forms, types A and B; (4) in some cases the diplococcus was present in pure culture and in others associated with other organisms—e.g., bacillus influenzæ and bacillus tuberculosis; (5) the clinical picture and pathological changes found in these cases were those met with in posterior basal meningitis; (6) in all probability posterior basal meningitis was a sporadic form of cerebro-spinal meningitis and was caused by the same micro-organism, the diplococcus intracellularis of Weichselbaum; and (7) in the majority of the cases it was impossible from the clinical aspect alone to make a correct diagnosis of the variety of meningitis present.

The PRESIDENT spoke as to the confusion which existed with regard to the different types of cerebro-spinal meningitis. As regarded the pathogenicity of the organism described by Mr. Nuthall and Dr. Hunter he had himself tested the coccus which Still had isolated from cases of posterior basic meningitis and had found that it killed guinea-pigs on intraperitoneal injection.

Mr. FOULERTON thought that Mr. Nuthall and Dr. Hunter had been working with two distinct species of coccus and not with merely different types of the same species. It was quite certain that diplococcus intracellularis meningitidis as described by Weichselbaum, and by Councilmann, Mallory, and Wright in their recent monograph, did not stain by Gram's method. He had found that this latter organism was uncertain in its growth on ordinary media. If it grew at all it usually grew fairly freely, but sometimes no growth would occur on one or two tubes out of a series inoculated at the same time; also the results of animal inoculation were very uncertain, some animals dying out of a series whilst others survived. He agreed that the organism described by Still in cases of posterior basic meningitis was diplococcus intracellularis meningitidis of Weichselbaum, but Dr. Hunter and Mr. Nuthall had clearly come across some other species, perhaps the pneumococcus, in their series of cases.

Dr. F. J. POYNTON (London) had found great difficulty sometimes in differentiating various species of cocci. He thought that Gram's method of staining did not give constant results.

Mr. W. C. C. Pakes (London) also thought that Gram's method of staining was not always reliable. He thought that Mr. Nuthall and Dr. Hunter had been dealing with two different species, possibly the pneumococcus and the diplococcus intracellularis meningitidis.

Dr. A. PAINE (London) said that his experience of Gram's method of staining as a means of differentiating organisms was not altogether favourable. He thought that the results were not always constant.

Mr. FOULERTON said that he could not agree that Gram's method of staining gave inconstant results if the method was used in the proper way. The method was founded on a chemical reaction, and chemical reactions did not vary. Of course, in old cultures some of the organisms sometimes lost in a greater or less degree capacity for holding the stain which they had once possessed. But if the method was carried out as a chemical reaction should be, that was to say, with careful regard to the constant composition of the stain, and if the staining was always carried out with fresh cultures under exactly the same time and other conditions, it was absolutely reliable. Diplococcus intracellularis meningitidis was an organism which was very readily decolourised when treated by Gram's method, and he could not allow that the coccus described as type B by Mr. Nuthall and Dr. Hunter which stained by Gram's method was the organism known by that name.

Dr. RIST (Paris) spoke in favour of Gram's method of staining, which was, he thought, one of the most useful methods of bacteriological diagnosis. The positive or negative Gram reaction was absolutely constant for some species, and characteristic of them, provided that the technical details were carefully observed. There were some species which behaved inconstantly with this method of staining, but this very inconstancy was a characteristic feature of these species. Dr. Rist had been working more especially with anaerobic species, and with them had found the method most useful; he would go further and would say that in some species Gram's staining reaction was an absolutely vital reaction. For instance, in the case of the bacillus of phlegmonous emphysema described by Fraenkel if the specimen was prepared from a culture in active growth the organisms stained deeply by the method, but if a culture in which the organism had died out was used the bacilli remained absolutely unstained.

Dr. LAZARUS-BARLOW placed absolute reliance on Gram's method, but it must be carefully carried out and a fixed limit of time allotted to each stage of the method. In order to test the method with bacillus diphtheriæ he had recently, after staining a cover-glass specimen, irrigated it with absolute alcohol for two hours, and at the end of that time the bacilli still retained the stain. With regard to Mr. Nuthall's and Dr. Hunter's paper, his own cases showed that a meningitis precisely similar, both clinically and in the morbid changes produced, to the posterior basic meningitis described by Still could be produced by the pneumococcus; diplococcus intracellularis meningitidis of Weichselbaum was not, therefore, the only cause of this condition.

Dr. F. J. POYNTON and Dr. A. PAINE communicated a paper on

The Present Position of the Bacteriology of Rheumatic Fever.

The authors gave a full account of what had been done by others in connexion with the bacteriology of rheumatic fever and described the coccus which they had themselves isolated. Its pathogenic effects on rabbits were referred to and especially the production of arthritis and endocarditis with vegetations on the valves. The coccus in cases of rheumatic fever was found in the capsule of the joints affected, in the heart wall, and on the affected valves. In the history of rheumatic fever heredity took such a prominent place and the rheumatic constitution was so clearly recognised that it was hard to escape from the conviction that the disease was not to be explained by the presence and nature of the micro-organisms alone. In addition there was, they thought, to be taken into account some particular condition of the human tissues predisposing to the disease. The authors hoped that in time an antitoxin for rheumatic fever might be discovered, but their own researches at present pointed to the fact that the diplococcus was widely distributed throughout the body, and not confined to one spot, as was usually the case in, for instance, diphtheria. At the end of the paper lantern slides illustrating the pathology of rheumatic fever were shown, and Dr. Paine demonstrated the joint and valve lesions which they had been able to produce in rabbits.

The PRESIDENT commented on the value of Dr. Poynton's and Dr. Paine's work. He assumed that an absolute diagnosis of rheumatic fever had been arrived at clinically in all the human cases. He raised this question because of the large number of cases which Dr. Poynton and Dr. Paine had been able to examine post mortem; his own experience was that rheumatic fever was now very much less fatal than in former times.

Mr. FOULERTON asked in what proportion of the cases vegetations had been found on the valves in the rabbits inoculated. Shortly after the first appearance of Dr. Poynton's and Dr. Paine's work the hearts of all rabbits killed or dying in his own laboratory had been examined, and they had been much struck by the fact that two out of the first nine animals examined showed well-marked vegetations on the left heart valve. It was evident that such lesions occurred in rabbits quite independently of inoculation with this coccus. Mr Foulerton did not think that Achalme's conclusions were of any value; the bacillus which Achalme had isolated from cases of rheumatic fever was probably bacillus enteritidis sporogenes of Klein, and it was most improbable that it had any causative influence in the disease. He also asked whether Dr. Poynton and Dr. Paine had been able to immunise rabbits against infection by their coccus. Rheumatic fever was a disease in which a previous attack seemed to predispose to another rather than to confer any immunity. That being so the effect of the attempted immunisation of rabbits might be interesting.

Dr. RIST said that since the appearance of Achalme's paper it had been shown that the bacillus which he had described was very frequently to be found in a number of cases, pathological or not, in which rheumatic fever was out of the question. The spores of this bacillus were to be found in milk which, not having been thoroughly sterilised, had been incubated anaerobically, and it might be that from this source Achalme's bacillus had come. In describing for the first time an organism for a disease which, like rheumatic fever, was so common, and the bacteriology of which had been investigated by so many competent pathologists, it was most necessary to explain why previous workers had failed to find the organism. In the case of tuberculosis the failure of others before Koch to find the bacillus was quite easily explained by what they now knew of the difficulty in staining the bacillus and in growing it on artificial media. These difficulties did not exist in the case of the diplococcus which Dr. Poynton and Dr. Paine had described for rheumatic fever, and he would like to ask if any explanation of the failure of other bacteriologists to find it could be given.

Dr. HARRY CAMPBELL (London) asked whether the diplococcus had any special affinity for the red corpuscles of the blood and whether one could account for the anæmia which was so characteristic of rheumatic fever by assuming that the chromocytes were actually destroyed by the organisms. He also asked whether the experimental endocarditis produced in rabbits attacked the left side of the heart more frequently than the right, as in man.

Mr. T. J. BOKENHAM (London) could confirm what Mr. Foulerton had said as to the occurrence of vegetations on the heart valves in rabbits. When investigating the action of streptococcic toxins on rabbits Mr. Bokenham had carefully examined the heart in a large number of cases and had found vegetations on the valves in about one animal in 10.

Dr. POYNTON, in replying, said that they had met with Achalme's bacillus in the course of their work, but they thought that it had no connexion with the disease. After some early experiences they had always incubated their milk tubes anaerobically over night before inoculating them in order to ensure the use of only sterile ones. One reason, perhaps, why previous workers had not found the diplococcus was that the organism was found chiefly in the capsule in joint affections and not in the effusion, which was what the majority had worked with. No special affinity of the diplococcus for the red blood cells had been noticed. No definite success in the immunisation of rabbits had yet been obtained. All the human cases in which the coccus had been found were cases which had been diagnosed as rheumatic by the various physicians in charge of them.

Dr. G. H. GOLDSMITH (Bedford) read a paper on

The Hæmoglobin Value of the Red Blood Corpuscle.

The amount of hæmoglobin in the blood might be estimated quantitatively by several methods: (1) chemically; (2) by spectrometry; and (3) by colorimetric analysis; and the various objections against any one of the methods by itself were considered. The method which Dr. Goldsmith had employed included: (1) the estimation of the hæmoglobin value of the blood by Gowers's hæmoglobinometer; (2) the corpuscular count with the Thoma-Zeiss apparatus; (3) the estimation of the percentage of corpuscles to plasma; (4) the count of the precipitated corpuscles; and (5) the estimation of the hæmoglobin value of the corpuscles. Having described his methods in detail Dr. Goldsmith gave the result of his examination of the blood in 18 males and 15 females, all healthy subjects. The hæmoglobin value of the blood was 117 in men and 105 in women; taking 117 as 100, the respective values for the two sexes were 100 and 89·7, figures which closely corresponded with Dr. Haldane's 100 and 89 for the male and female. With regard to the red-cell count the figures which he had obtained were an average of 4,860,000 per cubic millimetre for the healthy male and 4,350,000 for the healthy female. The average relation of corpuscles to plasma by bulk was 37 per cent. for the healthy male and 30·25 per cent. for the healthy female. The count of the precipitated corpuscles, even in healthy people, varied, however, enormously from time to time. His investigations had shown that the male had a larger number of red cells than the female, whilst the hæmoglobin value of the corpuscles was less in the female than in the male and the size of the individual corpuscles rather smaller.

The PRESIDENT paid a compliment to the thorough way in which Dr. Goldsmith's work had been carried out, and Dr. LAZARUS-BARLOW pointed out the great difficulties which had to be overcome before accurate quantitative blood work could be done. He also spoke of the value and clinical importance of similar work in connexion with cases of anæmia in which Dr. Goldsmith was now engaged.

OPHTHALMOLOGY.

FRIDAY, AUGUST 2ND.

The Varieties and Treatment of After-cataract.

This discussion was opened by Mr. RICHARDSON CROSS (Bristol) who said that there were no known means by which after-cataract could be absolutely prevented. He did not advise any early secondary operation as it was uncertain how much absorption would take place and the eye should be allowed to quiet down completely. For ordinary cases a modified Bowman's needle with a cutting edge should be employed, and if this failed a second cutting needle should be entered at the same aperture in the capsule. In complicated cases capsule scissors should be used. A form of iridectomy scissors had been made on De Wecker's plan, but with blades having double cutting edges. These could be used closed as a keratome and as scissors when opened within the eye. A still thicker capsule should be extracted, but only as a last resort.

The PRESIDENT (Mr. W. H. H. JESSOP, London) considered a very sharp and ground-down Graefe's knife far better than a needle, and he thought that a simple extraction without iridectomy was less liable to be followed by secondary cataract.

Dr. DARIER (Paris) thought that the one thing to be avoided was penetrating deeply into the vitreous.

Mr. HENRY POWER (London) described various methods of proceeding and thought that the danger of operating in these cases was very great and should only be incurred when the vision was very defective.

Mr. DEVEREUX MARSHALL (London) was fully convinced of the danger of needling and he avoided it whenever he could, but he thought that when it was inevitable it should be done early.

Dr. TATHAM THOMPSON (Cardiff), Mr. DYKES BOWER (Gloucester), Dr. A. H. THOMPSON (London), Mr. G. W. ROLL (London), Mr. L. V. CARGILL (London), and Mr. G. HARTRIDGE (London) also spoke.

Mr. RICHARDSON CROSS, in reply, said that in simple extraction he thought it far more important thoroughly to replace the iris than completely to remove all lens matter. He thought that if no iridectomy were done the liability to glaucoma was far less—in fact, he had never had a case. He thought that the needle described by Dr. Darier was a very good one. Sepsis was not accountable for all the cases that did badly. He always inserted the needle peripherally. All cases should be treated on their own merits and there was no fixed rule as to what state of vision justified needling.

Dr. F. W. EDRIDGE-GREEN (London) read a paper on

The Essentials of a Test for Colour-blindness.

He strongly advocated the use of names when trying and mentioned the fact that many normal-sighted persons were rejected by Holmgren's test and also that varieties of colour-blind people could pass that test.

Mr. DEVEREUX MARSHALL agreed with Dr. Edridge-Green's conclusions, having arrived at similar results from his own experience.

Mr. G. HARTRIDGE read a paper on

The Various Preparations of Silver used in Ophthalmic Work.

Nitrate of silver should only be applied by skilled hands on account of its liability to injure the cornea; the caustic effect might cause sloughing and cicatrices and also a deposit of silver in the tissue. Among the new preparations he mentioned actol, the lactate, which he found to be of no use, and itrol, the citrate. Argentarium, containing a very small percentage of silver, was of no particular value. Nargol, with 10 per cent. of silver, possessed many of the properties of protargol. It was less sticky and produced no pain, and was of service in conjunctivitis and lacrymal cases. Largin contained 11·8 per cent. of silver, the highest percentage in any. It was uncertain in its effect on purulent ophthalmia and useless in chronic cases, but useful in trachoma and lacrymal cases in 10 per cent. solution. Protargol was one of the best known preparations, containing 8·3 per cent. of silver. A 1 per

cent. solution was equivalent to 2 per cent. of nitrate of silver and possessed greater penetrating power; there was no caustic effect and it induced no pain. He used 10, 20, and 30 per cent. solutions—the last twice in 24 hours for purulent ophthalmia. It possessed great germicidal power. For trachoma he used a 50 per cent. solution.

Dr. DARIER thought that in many cases silver nitrate had a very bad effect. In feeble children a 2 per cent. solution might do much harm and possibly might cause ulceration of the cornea. He preferred the constant application of a drop of 5 per cent. protargol in ophthalmia neonatorum. After a few days the conjunctiva became tolerant and then silver nitrate solution could be used. In blepharitis he approved of 30 per cent. solution of protargal.

Dr. J. A. BOWER (Cheltenham) read a paper on

The Use of Suprarenal Gland in Ophthalmology,

which proved very satisfactory when prepared by macerating the fresh gland and combining it with chloretone for preserving purposes. It was of great value in hay-fever with conjunctival irritation, both as a nasal spray and as a local application. From 12 grains to one drachm was the strength used. In corneal ulceration it was harmful.

Dr. DARIER read a paper on

The Latest Therapeutical Discoveries in Ophthalmology—Acoine, Dionine, Epinephrine, &c.

Of the silver salts protargol was the most reliable, though ten times weaker than silver nitrate. For subconjunctival injections acoine was painless and without local action, but a prompt anæsthetic. Dionine was effectual in iritis when atropine failed to dilate the pupil alone. It was also an antiseptic and analgesic, and acted powerfully in the deep-seated pain which cocaine failed to relieve and in that of acute glaucoma and iritis.

Mr. F. M. GRANGER (Chester) thought that no one could deny the great power of suprarenal capsule. Jacques's solution was the best and contained both a contracting and dilating substance. Dionine was a very useful drug for diagnostic purposes.

Dr. E. E. MADDOX (Bournemouth) agreed. He was struck with the value of suprarenal extract in preventing hæmorrhage in excision of the eye.

Mr. SYDNEY STEPHENSON (London) and Dr. GEORGE CARPENTER (London) read a

Note upon Tuberculosis of the Choroid,

illustrated by ophthalmic pictures and microscopical specimens. White spots were seen in acute miliary tubercle, in multiple lesions two or three, less frequently there was one larger mass at the macula. In chronic tuberculosis the lesions might be single or multiple, and sometimes so diffuse as to resemble a neoplasm. Occasionally the deposit disappeared.

The PRESIDENT spoke of one such case as that last mentioned.

Mr. H. E. JONES (Liverpool) read his motion concerning the compensation of workmen after eye injuries, which was seconded by Mr. HENRY POWER.

On the motion of Mr. CARGILL, seconded by Mr. STEPHENSON, this was referred to a committee.

DISEASES OF CHILDREN.

FRIDAY, AUGUST 2ND.

This section began work (all its officials being present) with an admirably clear and succinct paper by Mr. H. J. STILES (Edinburgh) on

The Radical Cure of Hernia in Infants and Young Children.

This was based on his own experience of 100 cases. He referred to the discussion in the section on the same subject at the Portsmouth meeting when it appeared to be the general opinion that there were practically no risks in these operations, no recurrence (as a general rule), and no apparatus needed afterwards. He did not agree with the opinion that a young child had not the necessary development of the parts about the internal and external ring for operation, and he considered that infants bore operation very well. The operation consisted in isolating and removing the funicular process and in introducing one or two sutures to reduce the size of the ring and to lessen the liability to hernia in after-life. These herniæ were chiefly right-sided. Nineteen were present at birth, and 83 per cent. appeared in the first year of life. Out of 78 patients 72 did not have the sac communicating with the processus vaginalis. The steps of the operation were three—to expose the cord and its coverings, to excise and to ligature the process, and to suture the ring and to close the wound. After referring to the isolation of the sac he said that where this was thin and transparent he thought it unnecessary to open the sac, as the contents could be seen and felt through the covering. Where, however, a truss had been worn the sac might be considerably thickened, and it would be wise to open the sac so as to be sure that the bowel had been all returned. He exhibited the needle which he used for suturing the ring, which he did with sterilised catgut. In 86 cases the hernia was easily reducible. In seven cases it was irreducible, but of these four were spontaneously reduced. In one case evidently the bowel had got much bruised by taxis applied before the child was admitted. It was therefore wise to wait (unless, of course, any urgent symptoms were present) and to see if any irritation was likely to come from taxis where that had been tried. Strangulation had taken place chiefly in infants, but it was quite a different thing from that in adults as it was a very gradual process. In four cases the appendix was removed; in three cases the sac was found to be tuberculous, and under the anæsthetic the mesenteric glands were felt to to be enlarged. Two cases only had recurred: one where the bowel was strangulated and one a case of hypospadias. There were three deaths—one, as mentioned above, where the bowel was much bruised by the taxis; a second 36 hours after the operation (no cause could be found post mortem, but there was an epidemic of influenza at the time); and a third with acute jaundice and suppression of urine on the third day, probably due to chloroform poisoning.

Mr. W. MCADAM ECCLES (London) dealt with the causes of hernia. Besides the anatomical cause he considered bad feeding (as was insisted upon in Wednesday's discussion on Intussusception) and pulmonary disease, whooping-cough, and bronchitis especially as great causes of hernia in children. The relation of phimosis to hernia had been discussed at the Portsmouth meeting, where it was pronounced to be better not to operate in the first year of life (if no urgent reason was present for so doing). What were they to do with the child in the meanwhile? A properly made and fitted truss should be worn during the first year; it would frequently cure the hernia (more than half the cases were so cured), or at all events would prevent the enlargement of the rupture, which was sure to happen if no truss was worn. The truss should be covered with black rubber (red rubber was very apt to excoriate the skin) and if properly put on would keep in its place. He had two objections to the use of sutures for the mouth of the sac—that they seemed to interfere with the valve-like action of the lower fibres of the ring and that when sutures were introduced there appeared to be a little more tendency to suppuration. When suppuration had occurred sometimes adhesion of scar and intestine took place. He would always open the sac; occasionally a bit of omentum might be left in it, and once he had found a projecting portion of the bladder therein. He preferred silk for tying the sac. In cases of cæcal hernia he always removed the appendix. He suggested that cases of tuberculous sac might be due to tubercle of the peritoneum. He sutured the wound very closely and covered it with collodion dressing. He kept the children in bed for about 10 days. He agreed with Dr. Stiles that infants and children were operated on with great success.

Mr. C. F. CUTHBERT (Gloucester) discussed several points of the paper and made the useful suggestion (which he himself always adopted) of keeping the child bandaged up (exactly as would be done afterwards) for a few days *before* the operation.

Dr. E. MANSEL SYMPSON (Lincoln) always had the phimosis which so frequently accompanied hernia in infants operated on at once. This often (with, no doubt, the rest in bed and proper dieting) caused the hernia to disappear or, at all events, lessened it.

Dr. FERGUSON (Chicago) did not operate in these cases (unless the hernia was very large or strangulated) until the child began to walk, till which time a truss was worn. He attributed part of the causation of hernia, more especially in males, to a deficiency of the region of the internal oblique muscle from Poupart's ligament. In females this came more from the middle and inner portion of the ligament; in males chiefly from the outer half. The internal oblique should be the the natural guardian of the internal ring.

So, after having operated, he brought the attachment of the muscle down to the middle of Poupart's ligament and united it with the ligament. This part of the operation he explained on the blackboard. He was questioned as to any recurrence, and he mentioned that he offered 10 dollars for any case of recurrence; years had gone by, but he hadn't had to pay. One patient came back, but the rupture was on the opposite side.

The PRESIDENT (Mr. FREDERIC EVE) considered that Mr. Stiles's practical paper would have a great influence on surgeons in this country who, like most of them, were impressed with British statistics. He agreed with all the important points in the paper. He would never hesitate to operate on a child under one year of age if the hernia was large. He usually slit up the aponeurosis of the external oblique so as to tie up the sac as high up as possible. He did use kangaroo tendon, but now he preferred silk. He agreed that recurrence took place only in cases wherein strangulation had occurred previously to operation originally.

Mr. STILES considered that pulmonary trouble was among the chief causes of hernia, as mentioned by Mr. Eccles. He thought that worsted trusses were absolutely unsatisfactory. His objection to silk was that if the wound did become septic it made the condition of the wound so much worse. There was not nearly so much risk of this if catgut was used. He found that the temperature in his cases was lowered since he had abandoned the use of antiseptics and only used sterilised dressings. He had generally found that there was rather a redundancy of the internal oblique than any deficiency.

Dr. WILLIAM EWART (London) then read a paper by himself and Dr. W. LEE DICKINSON (London) on

Two Cases of Chronic Hydrocephalus in Infants treated by Tapping and the Introduction of Aseptic Air in the Place of the Fluid.

He described the method of operating, two Southey's tubes with rubber continuations being introduced into the ventricle a little distance apart, the end of one being passed into an antiseptic solution and the end of the second fitting on the nozzle of a glass syringe devoid of its piston which after sterilisation had its mouth plugged with sterilised wool. The tubes were allowed to stay in for various lengths of time, from seven hours to two days, and varying quantities of fluid escaped, from 18 to 50 ounces, its specific gravity, low at first (1004) increasing after the first two or three tappings to about 1011. The first case treated improved in several points, the hydrocephalic cry altered in character, and the pressure symptoms were relieved. In the second case the tubes were left in for nine hours, and six and a half ounces were removed. The screaming stopped and the fluid did not re-accumulate. These cases showed that the fluid might be completely evacuated and air properly filtered might take its place, that one operation might suffice, and that in cases of great effusion the pressure on the brain was much relieved.

The paper was discussed by Dr. G. ERIC PRITCHARD (London), Mr. ECCLES, and Mr. STILES, and Dr. EWART briefly replied.

Dr. F. E. BATTEN (London) then contributed a paper on

Suppurative Pericarditis in Children.

He commented on six cases in patients of various ages, from 10 months to three years. In two cases it commenced after measles and in the rest after bronchitis or pneumonia. There was no very definite feature in the temperature. The pulse was rapid, from 150 to 160 per minute, with surprisingly little distress. There were in some cases œdema of the legs and feet and attacks of cyanosis. The impulse-beat was in the ordinary position, or epigastric. There was no heart murmur or pericardial friction. There were marked physical signs in the lungs of consolidation or pleural effusion. Both pleuræ were adherent in all the cases, with some fluid, and in one dried-up pus. In one case there was evidence of tubercle. Inside the pericardium there were from a few drachms to six ounces of pus. There was no endocarditis. One patient had tuberculous peritonitis and another had tuberculous meningitis. The condition of these cases was very like that of children suffering from empyema. As to treatment it would be better not to use an exploring needle, but to open an intercostal space or to resect a rib to get at the pericardium.

Dr. MANSEL SYMPSON then exhibited the stone (weighing 200 grains) and read the notes of a case of

Suprapubic Lithotomy

in a boy 11 years of age. The symptoms had lasted about five years, there being pain before and during micturition which was of great frequency, especially at night. On Oct. 30th, 1900, the bladder having been sounded five days before and a stone having been found, suprapubic lithotomy was performed. The stone, which was two inches long by half an inch thick, was extracted and the bladder opening was sutured (the mucous coat being avoided). This was done as the bladder was so small, the skin wound being left open at the lower end with a gauze drain. The after-history was quite uneventful, and the patient was discharged cured on Dec. 3rd.

Dr. PRITCHARD then read an exhaustive and valuable paper on the Over-feeding of Infants, which was afterwards discussed by Dr. H. CAMPBELL (London).

Papers by Dr. G. F. STILL (London) on Suppurative Pericarditis in Children and by Dr. A. H. BAMPTON (Ilkley) on Mumps associated with Endocarditis were taken as read.

Dr. A. G. FOLJAMBE FORSTER (Cheltenham) then showed a temperature chart of Acute Pneumonia with Hyperpyrexia treated with oxygen from the first, to which he considered the child owed its life; a well-marked case of Pseudo-hypotrophic Paralysis; a very interesting case of Transposition of the Heart to the Right (the apex beat being at the right nipple) from Right-sided Empyema; and a case of Diplegia following an attack of convulsive fits, measles, pneumonia, and meningitis.

LARYNGOLOGY AND OTOLOGY.

FRIDAY, AUGUST 2ND.

Dr. WATSON WILLIAMS (Bristol) gave a lantern demonstration with stereoscopic slides of Anatomical Preparations of the Naso-pharynx and Larynx. He illustrated the remarkably realistic effects that could be obtained by this method and its value for purposes of teaching and demonstrations.

Dr. HEMINGTON PEGLER (London) read a paper on

Morcellement of the Tonsils.

Instruments used in the operation were shown. The operation was suitable for cases which could not be dealt with in the ordinary way by the tonsillotome and could be performed under a local anæsthetic.

In the discussion which followed

Dr. BROWN KELLY (Glasgow) spoke in favour of cocaine or eucaine in a solution of rectified spirit and aniline oil, as recommended by Dr. A. Gray, as an efficient local anæsthetic for the operation.

Dr. JOBSON HORNE (London) inquired whether Dr. Kelly in his experience had met with the untoward symptoms described by some who had used cocaine and eucaine mixed with aniline oil.

Dr. BROWN KELLY said that he had observed cyanosis following the use of this anæsthetic, but he had not met with the alarming symptoms that others had described.

Dr. HERBERT TILLEY (London) considered the operation that had been described under the term "morcellement" was suitable only for the removal of long, flat tonsils and was not intended for cases suitable for the guillotine.

Mr. G. P. FIELD (London) read the notes of the following cases of

Aural Disease from South Africa.

Case 1.—Lieutenant —— was wounded in the Boer war by a splinter of shell which had passed through the antrum and palate; he had sustained injury to the right membrana tympani from the same cause. The cure of the otorrhœa and the healing of the membrane resulted in the restoration of hearing. Case 2.—A trooper, a New Zealander, sought advice on account of double perforation due to combined starvation and exposure at nights during the Boer war. He was cured by application of a 10 per cent. solution of trichloracetic acid. Case 3.—The patient, another sufferer from the war, was kicked on the right side of the head by a stampeding horse. The result was incurable deafness of the left ear, probably from damage to the labyrinth. Case 4.—A major became deaf from concussion of heavy guns. The treatment was as follows: rest to the ear, counter-irritation over the mastoids, and iodide of potassium internally. Nearly complete recovery was the result. Cases 5 and 6 were instance of chronic non-suppurative catarrh and polypus respectively from a prolonged exposure to cold rainy weather in Zululand. Successful treatment was carried out after the lapse of three years. Case 7.—The patient suffered from absolute deafness with tinnitus and giddiness developed about nine months after contraction of syphilis. Treatment consisted of hypodermic injection

of one-eighth grain doses of pilocarpin. The result was negative at first, but eventually complete restoration of hearing of the left ear and general improvement in health followed. Cases 8 to 12.—Aural exostoses. These, in the speaker's experience, were best treated by making a small opening with the dentist's drill. A sequence of cases afforded confirmation of Mr. Field's original opinion as to the frequent causation of exostoses by persistent sea-bathing. In one instance, at least, double exostoses appeared to have originated in irritation due to the use of the binaural stethoscope. Case 10 afforded an example of the risk of formation of abscess attendant on delay in operation. Case 12 was an instance of the comparatively soft exostoses met with chiefly in women. A main feature in all these cases was the good results accruing from the drilling of an opening of small calibre through the apices of the ivory exostoses.

Dr. HERBERT TILLEY reported a case of

Chronic Mastoid Antrum Suppuration Complicated by Aural Exostosis.

The patient was a female, aged 65 years, and the suppuration had lasted for 40 years. The supervention of pain in and around the right ear with paralysis of the face on the same side necessitated the complete mastoid operation. The meatus was so narrowed that it would not admit the finest probe. The interest of the case lay in the fact that in spite of a large portion of the concha and posterior meatal wall having been removed at the operation the meatus had contracted since the operation so that only an ordinary surgical probe could be passed through it. Ballance had suggested that such post-operative atresia might be prevented by skin-grafting, but the patient being a great sufferer from angina pectoris it was thought unwise to suggest such a course in her case, as she remained very comfortable and the power over the facial muscles was returning nearly five months after the operation.

Dr. DUNDAS GRANT (London) communicated a paper on

Some Details in Eustachian Catheterisation.

A difficulty which had baffled an operator was the steering of the catheter past some deformity of the septum, whether a deflection or thickening. Generally the obstruction had been a ridge running obliquely upwards and backwards, sometimes a so-called scoliosis bulging low down in front. Discomfort and disappointment had resulted from a preliminary rhinoscopic examination not having been made. The application of a weak solution of cocaine facilitated catheterisation by diminishing the patient's sensitiveness and reducing vascular turgescence of the mucous membrane. The passage of the catheter was also facilitated by the use of the speculum at the same time. In the case of an oblique ascending ridge on the side of the septum it might be taken, as a general rule, that the catheter should be introduced with its beak pointing towards the septum and underneath the ridge, that when it was in this way pushed back as far as it would go the point should be turned downwards and outwards underneath the inferior turbinated body and upwards into the hollow, and then upwards and outwards into the vault of the inferior meatus. It was sometimes necessary to withdraw the catheter slightly before engaging its point under the inferior turbinal. The instrument was then pushed steadily backwards until it was felt to be free in the naso-pharynx, when it could be turned downwards and hooked over the back of the soft palate; in some cases where the septal ridge diminished rapidly and considerably towards the posterior part the beak of the catheter need not be turned under the turbinal at all but kept pointing upwards under the septal crest until the naso-pharynx was reached. This proceeding was greatly facilitated if the point of the nose was pressed forcibly upwards. When the inferior turbinal projected considerably and the septal spur was not very great it was sometimes advantageous to pass the catheter above the turbinal till its tip pointing downwards reached the naso-pharynx, when by a little steady downward pressure the stem of the catheter might be forced down between the turbinal and the crest on to the floor of the meatus. In another class of case there was a projection from the septum at the junction of its posterior and middle third presenting a somewhat arched slope on inspection. When this was present the passage of a sufficiently curved catheter was quite impossible as long as the usual rule was followed of turning the beak downwards and pushing it along the floor of the nose. The catheter must, on the other hand, be placed with the back of its beak on the floor of the nose after the manner of the head of a golf club, and to allow this position to be maintained while the catheter was pushed sufficiently far back for its tip to get in the arch-like projection it was necessary for the tip of the nose to be tilted upwards and to the opposite side.

TROPICAL DISEASES.

FRIDAY, AUGUST 2ND.

The HONORARY SECRETARY (Dr. MAX F. SIMON, C.M.G.) was in the chair.

Lieutenant-Colonel A. CROMBIE, I.M.S. (retired), read a paper on

The Maladies of European Children in Hot Climates.

He stated that, speaking generally, it might be said that the sick-rate of European children was lower in India than it was in the United Kingdom, but that, on the other hand, when they came to speak of the death-rate the matter took an altogether different complexion, and the illnesses of European children were more frequently fatal in India than were those of children at home. From a table, showing the sick- and death-rates as well as the case mortality of the principal diseases affecting children in India and the United Kingdom respectively in 1899, it appeared that when one deducted, from the 2899 admissions among the 5500 European children in India, the 535 cases of malarial fever which were not common to both countries, the admission-rate in India was reduced to 429·8 per 1000, or just about 100 per 1000 less than it was in the United Kingdom; so that if these children could be defended from the bite of the anopheles mosquito their chances of illness would be 10 per cent. better in India than in the United Kingdom. The diseases referred to by Lieutenant-Colonel Crombie were eruptive fevers, malarial and other fevers, tuberculous diseases, debility, and other general diseases—of the nervous system, of the respiratory system, and of the digestive system. It was surprising to note that, as a matter of fact, at least among soldiers and their children, diseases of the digestive system were rather more prevalent at home than in India, but it was noticeable that, as Lieutenant-Colonel Crombie remarked: "It is not their frequency but their mortality that constitutes their gravity." The mortality from these diseases was just four times greater in India than it was at home among children, and nearly six times greater among adults. Liver abscess was entirely absent after dysentery in children; this was no doubt explainable by the kind of dysentery from which children suffered. Dysentery was frequently confounded with rectal catarrh or proctitis of a transient character, and it was in these cases that ipecacuanha and the saline treatment had acquired a reputation which it was doubtful if they deserved, as in cases of the kind the patient tended to recover without specific remedies. Concerning the diagnostic value of the Widal reaction Lieutenant-Colonel Crombie remarked: "I think it will be found that a very large percentage of natives of India who are not suffering from any febrile condition and who have never, or certainly not for many years, suffered from any fever which could be by any possibility diagnosed as enteric fever, give the reactions in a perfectly characteristic way." As regarded tuberculous diseases Lieutenant-Colonel Crombie stated that while the admission rate for all tuberculous diseases appeared to be higher among European children in India, the death-rate and case mortality were both lower. These numbers might, however, be affected by the habit of invaliding to England.

Dr. EDWARD HENDERSON (Shanghai) insisted upon the advantages of obtaining a wet nurse instead of bringing up children by the bottle when the mother could not nurse her child in warm climates. European children should not be kept in the tropics after from four to seven years of age. If they were kept longer they were apt to become anæmic, to have attacks of digestive disorders, diarrhœa, and dysentery, and they were apt to grow too rapidly for their physical strength.

Dr. PATRICK MANSON, F.R.S. (London), believed that many diseases were included under the term "dysentery" and that a definition of the term was a pressing necessity. He noted that Lieutenant-Colonel Crombie took no notice of such diseases as diphtheria, trismus neonatorum, or hypertrophic cirrhosis of the liver in children.

Major W. H. BURKE, I.M.S., considered the rainy season most insalubrious in Bombay. He endorsed Lieutenant-Colonel Crombie's opinion concerning the prevalence of

enteric fever and said that tuberculous ailments amongst European children were frequent.

Mr. J. CANTLIE stated that in Hong-Kong from 1887 to 1896 trismus was responsible for 50 per cent. of the total mortality in the island. He had known trismus to be conveyed to a European infant by a European nurse who came from a convent where trismus was very prevalent. Half-caste persons in Hong-Kong suffered more from phthisis than either the Europeans or the Chinese.

Mr. JOHN D. GIMLETTE (Pahang) read a paper on

An Epidemic of Zinc Poisoning through Drinking Contaminated Water in the Tropics.

He stated that the epidemic occurred during 1900, among a half-company of men of the Malay States Guides (Sikhs and Pathans) stationed at Kuala Lipis, Pahang. The men lived in barracks, which were built in 1898, and were roofed with galvanised iron. In January, 1900, galvanised iron tanks were supplied in order that water might be collected from the roofs of the buildings, the water-supply having been obtained previously from a large river in the neighbourhood. In 1900 an unusually large number of men were attacked with gastro-intestinal troubles and at the close of the year it was found that 43 individuals out of the 56 men of the half-company had suffered. Mr. Gimlette began to suspect some form of metallic poisoning and sent samples of water to the Government analyst in Singapore, who reported acid carbonate of zinc in solution in large quantities, from 5·82 to 11·45 parts per 1,000,000. Discontinuance of the water was ordered and the number of gastro-intestinal patients steadily decreased, only 22 cases (many of these being old patients) having been treated from January until April, 1901. The symptoms presented were those of colic, diarrhœa with consequent anæmia and emaciations, and a spurious kind of dysentery. A clinical account of six typical cases, with one death from exhaustion from long-continued diarrhœa, was given in the paper. In concluding Mr. Gimlette asked a pertinent question as to whether it was not advisable that inquiry should be made as to possible contamination of water in places in Australia and South Africa where water was collected from galvanised iron roofs, especially in regard to the prevalence of gastro-intestinal disease in the latter country.

Dr. MANSON, Dr. M. F. SIMON, Dr. E. HENDERSON, and Mr. J. CANTLIE joined in the discussion upon the relation of beri-beri to metallic poisoning and all concurred in negativing the assumption.

Dr. J. PRESTON MAXWELL read a paper upon

Filarial Abscess.

He stated that in his practice in Southern China he was struck with the frequent occurrence of abscess in connexion with the scrotum as compared with its occurrence in England. In searching for the cause he commenced to examine the blood systematically. He found filaria sanguinis hominis nocturna in all cases. Such abscesses occurred most frequently in the scrotum, but they might occur also in any situation where there was loose connective tissue rich in lymphatics. In one case only were portions of the body of a parent worm found in the abscess. The death of the parent worm might sometimes be the cause of the abscess, but Dr. Maxwell was inclined to think that in many cases the cause might be connected in some way with the blocking of lymphatic vessels, especially as in some cases the abscess appeared to be the first manifestation of elephantoid disease of the scrotum or of a limb. Filarial abscess might be thus classified: (1) abscess of the scrotum—(*a*) suppurating hydrocele, (*b*) abscess of the cord, and (*c*) abscess below the testicle; (2) abscess of the limbs; and (3) intra-abdominal or intra-thoracic abscess. Filarial abscess, if treated, ended in recovery so far as the condition itself was concerned, but it was liable to be followed by elephantoid trouble, of which, as had been said, it seemed sometimes to be the first manifestation.

Dr. MANSON said that filarial abscesses developed either in connexion with dead parent filariæ or in obstructed lymphatics. Grave conditions arose from the death of a parent filaria in the lymphatic channels of the thorax. He remarked on the disappearance of filarial embryos in the blood subsequently to the development of such abscesses in the abdomen. He considered that removal of the groin glands in filarial disease undertaken for the purposes of cure by removing parent filariæ was scarcely a rational method of treatment, as parent worms existed in numbers in the lymphatics elsewhere in the body. He advised short-circuiting the obstructed lymphatic circulation in such cases by stitching a lymphatic in the thigh to a venous trunk, so that the blocked channel might get relief by discharging its contents into the venous circulation.

Professor J. A. MACWILLIAM (Aberdeen) saw no physiological reason against the lymphatic current being directed into a vein in such a region as the groin.

Dr. W. GILMORE ELLIS (Singapore) read a paper entitled,

Some Remarks on Asylum Practice in Singapore.

He remarked that as in India, so in the Straits, the majority of patients belonged to the lowest classes. There was a marked absence of the more acute forms of insanity, the most prevalent form being an exaggeration of a low standard of intelligence passing rapidly into dementia. Primary dementia was not uncommon. Delusions and hallucinations were, as a rule, of a very simple character. A belief in witchcraft was universal. Melancholia was rare and never very acute. General paralysis of the insane was rarely, if ever, seen among Asiatics. The general causes of this disease—anxiety, worries, excesses—were uncommon among Asiatics. The female recovery-rate was about 35 per cent., while that for males was about 41 per cent. There was no puerperal insanity; Dr. Ellis had seen only one case in 12 years, and this possibly partly accounted for the low female recovery-rate. Insanity consequent upon syphilis or following malarial fever was common; the latter ended in recovery. Neither opium-smoking nor the subcutaneous use of morphine was a cause of insanity. The food question in an Eastern asylum was important, and refusal of food must not be looked upon as a sign of insanity without careful investigation, as, so long as a mere glimmering of sense was left to the patient, such refusal might be a question of "caste" or religious prejudice. There was great difficulty in finding amusements for Asiatic patients. Dr. Ellis stated that beri-beri was a large cause of mortality in the lunatic asylum of Singapore. He concluded his paper with a few remarks on "amok," describing the conditions under which he considered persons suffering from this mental condition to be responsible for their actions.

Some Points connected with Human Filariasis.

Dr. J. EVERETT DUTTON (Liverpool School of Tropical Medicine) described a "weak spot" in the labium of the mosquito as the aperture of exit of the filarial parasite whilst the mosquito was feeding. Grassi believed that whilst the mosquito was feeding the bent condition of the labium was such that it gave way and allowed the embryo to escape. Dr. Dutton, however, found that the chitinous condition of the labium near the top was replaced by a delicate membrane and that it was at this point that the parasite in all probability escaped. As regards the food of anopheles, although Dr. Manson had stated that the labium had been found still occupied by filaria after many meals of bananas, yet Grassi and Noe had found the labium empty, and in all probability the filaria did occasionally pass into fruits and vegetables.

Dr. MANSON remarked that Dr. Dutton's observation was a very important point in the elucidation of filarial infection, and that it threw light on the difficult and intricate subject of how the filarial worm passed from the mosquito to the human body.

NAVY, ARMY, AND AMBULANCE.

FRIDAY, AUGUST 2ND.

Mr. J. CANTLIE, opened the proceedings of this section with a paper on

Medical Cadet Corps.

He advocated the including of the medical student in a military medical cadet corps as early as possible in his career when his mind was not yet made up as to his future career and thus to catch him before he became imbued with the prevalent abuse of the services by newspapers. He thought that the medical profession ought to make some return to the State for the benefits which they derived from its protection. He would have a medical cadet corps at every medical centre for teaching and thus overcome the objection of centralising and taking men away from their work. They could be trained in ambulance work and could take their name from their school, as "Cambridge Medical Cadet Corps." "Edinburgh Medical Cadet Corps." They should have a special uniform and adequate grants for efficiency should

be given. Nominations should be made to the army and navy only from those who had gone through the medical cadet corps at their school. Promotions in the corps should be by State examination. Preference should always be given to old cadet corps students. Medical students should not be allowed to serve as privates along with laymen. This would increase the prestige of the medical men in the service, to which they were as much entitled as were cadets of engineers or artillery.

The PRESIDENT (Deputy Surgeon-General W. G. DON) made commendatory remarks on the paper and invited discussion.

Surgeon-General T. F. O'DWYER, A.M.S., thought that more detail of expense of forming medical cadet corps was wanted before the matter could be gone into. He preferred that commissions in the Royal Army Medical Corps should be granted after competition and not on nominations. One difficulty about cadet corps was that there were no volunteers in Ireland. How could that be got over? The response of volunteer medical officers to his inquiries as to their willingness to go to South Africa was not very satisfactory. If the Government could not support a medical cadet corps the schools might refuse the expense themselves.

Surgeon-General C. M. CUFFE, C.B., did not approve of volunteer cadet corps as units except in order to accustom medical students to the work. A large number of volunteer medical officers offered their services in his district. He did not approve of nominations to the service.

Surgeon-Lieutenant-Colonel W. COATES, V.M.S.C., thought that in future campaigns volunteer medical units should as far as possible be kept together in the same batch. The officers should not be separated from their own men. He was in favour of nomination by heads of colleges for commissions in the Royal Army Medical Corps and a modified form of competitive examination afterwards.

Mr. CANTLIE replied that volunteers in Ireland ought to be trained as stretcher-bearers. Students could be caught in the interval between leaving their medical school and settling down in practice if they had been made familiar with the military medical idea through having belonged to medical cadet corps. He would not send a single consulting surgeon or physician to the front in war time who had not done something for his country in peace time by assisting with a cadet corps.

Mr. CANTLIE proposed the following motion which was carried unanimously after being seconded by Surgeon-Lieutenant-Colonel W. COATES:—

That it be a recommendation to the Council of the British Medical Association to consider whether the establishment of medical cadet corps in connexion with the medical schools is feasible or desirable, and if so whether the matter should not be brought to the attention of the War Office.

Mr. R. J. COLLIER read a paper entitled

The Ambulance and Home Nursing Classes of the London School Board.

He dealt with the benefits of ambulance teaching in school boards and its universal importance and utility from a public point of view. He stated that the London School Board had instructed over 16,000 pupils and others, before he joined the school board as a teacher, by the aid of the St. John Ambulance Association, and that in 1900 after the first course nearly 800 teachers passed out of 900. The alacrity with which the teachers and pupils availed themselves of the opportunity afforded was important and indicated the need for such an arrangement.

The PRESIDENT said that the paper was of great public interest.

Mr. J. HALL-EDWARDS (Birmingham) read a paper entitled

Roentgen Ray Work in South Africa.

He reviewed the advent and course of the x ray in surgical work, civil and military. He gave an interesting and detailed account of his work and experiences in South Africa with the x-ray apparatus in the Imperial Yeomanry Hospital.

The PRESIDENT commented on the paper in terms of praise and invited discussion.

Surgeon-General O'DWYER said that military surgeons fully appreciated, and were quite alive to the great value of the x ray. The x ray had hardly been long enough in existence for elaborate instruction to have been given to the Royal Army Medical Corps in its use, but no doubt that would be fully done at the earliest possible date. A further benefit of the x ray was that a soldier discharged from the army with an obscure injury could be accompanied to some medical man perhaps remote from an x-ray apparatus by a good photograph of his injuries.

Mr. HALL-EDWARDS, in reply, said that in considering the question they must remember that they had at their disposal a method of localising bullets with absolute accuracy and that advances in surgical procedure had considerably lessened the risk attendant upon an operation. They knew that bullets had been retained in the tissues for half a lifetime without producing any serious results. On the other hand, retained bullets had proved a source of irritation after having lain in a quiescent state for years. Whether or not the modern projectile with its cupro-nickel or steel casing would be as inert as the old leaden bullet yet remained to be seen. Their experience in these matters was so far exceedingly limited; nevertheless, there must exist opinions as to the advisability or otherwise of removing bullets the exact position of which was known, it being taken for granted that the operation itself did not involve any serious risk. Not being a surgeon, it would be a piece of presumption on his part to offer any positive opinion, but having been engaged in South Africa in localising bullets, and having seen numerous operations for their removal, he was more than interested in knowing the general opinion of the profession upon this most important subject. He would here quote three cases out of many which had recently come under his observation, and he must admit that when a bullet was located in a position from which it could be removed with ease and certainty it was much safer in the patient's pocket than in his tissues. A private in the 1st Dragoon Guards was shot on Feb. 14th, 1901, at Hout Kraal. He was advancing up a kopje when the bullet struck him. The entrance wound was of about the size of a shilling and presented rough and jagged edges, and was situated just below the iliac crest on the left side. There was no exit wound. The bullet was localised close to the spinal column, between the second and third lumbar vertebræ. The localisation showed that the bullet lay at a depth of one and a half inches from the skin. The only symptom was very slight pain in the back in walking; nevertheless, it was decided to remove it. The bullet was found lying in a sac containing about half an ounce of semi-purulent fluid and several pieces of dead bone from the transverse process of the third lumbar vertebra. The patient made a rapid recovery and was discharged as cured. Although it was impossible to predict what might have occurred had this bullet been allowed to remain, there could be little doubt that all anxiety had passed away with its removal. The next case was one which presented itself at the Central Hospital, Birmingham. A man was admitted suffering from cancer in the throat; after admission it was whispered that 11 years previously he had attempted suicide by shooting himself in the mouth, so he was sent to me. The radiograph showed the presence of two bullets deeply situated in the structures of the neck. The case was too far advanced for operative treatment, so he was allowed to go home and there was no record of what had subsequently happened. The third and last case which he quoted was that of a private in the Cameron Highlanders who was shot at Spitz Kop on July 20th, 1900. He was advancing at the double when a bullet struck him in the groin just above the middle of Poupart's ligament. There was no exit wound. On admission to the Imperial Yeomanry Hospital he complained of pain on walking, and the movements of the left hip were not so good as were those of the right. The bullet was localised at a depth of two and a half inches from the surface of the buttock, upon which he was lying during the taking of the radiograph, so that the total depth was little short of three and a half inches. The bullet was found to be imbedded in the neck of the femur and was removed; it was uninjured. The patient made a complete recovery and returned to England with perfect movement in the joint. Mention might be made of several other cases in which retained bullets had been the cause of trouble, but these were sufficient to point to the fact that in many instances they were far better removed.

The meeting then adjourned to the lantern-room where Mr. CUTHBERT WALLACE (London) gave a lantern demonstration of the various types of wounds and injuries to bone and soft parts occurring in the South African campaign. The demonstration was well attended and of great interest.

A cordial vote of thanks was proposed by Mr. ANDREW CLARK (London) to Deputy Surgeon-General W. G. Don for his genial and able conduct of the business of the section and was carried by acclamation. A like vote was proposed and

accorded to the Secretaries for their able and tactful management of the affairs of the section.

DERMATOLOGY.

FRIDAY, AUGUST 2ND.

The following cases were exhibited: A case of Leucodermia and Telangiectatic Atrophodermia following Measles, by Dr. ALFRED EDDOWES (London); and a case of Ichthyosis Hystrix, by Dr. D. G. MACLEOD MUNRO (Cheltenham).

Dr. NORMAN WALKER (Edinburgh) brought forward the following motion:—

That it is, in the opinion of this meeting, desirable that the Dermatological Section of the Association should meet not less frequently than twice in four years; and that this resolution be forwarded to the Council of the Association.

It was seconded by Dr. T. COLCOTT FOX (London) and carried *nem. con.*

Seborrhœa.

Dr. T. COLCOTT FOX opened a discussion on Seborrhœa, or, as he preferred to term it, "Steatorrhœa." He commenced with a brief consideration of some of the functions and the distribution of the sebaceous and sweat glands, with especial reference to the relative parts played by these glands in the production of oil in various regions of the skin. He put the questions whether the coil glands could secrete oil in sufficient quantity to form droplets at the pores or a notable oily coating of the surface; and again whether the structure of the sebaceous glands warranted the conclusion that the output of sebum could be greatly increased without their hypertrophy. The views of various authors were discussed at some length. He then gave a recital of views held as to the nature of seborrhœa in regard to the quantitative and qualitative alterations of sebum and pointed out the clinical distinction between seborrhœa oleosa (oily seborrhœa) and seborrhœa sicca (greasy squamous seborrhœa). Pityriasis capitis was held to be a distinct affection, but was grouped by Hebra with seborrhœa sicca as interdependent processes. Seborrhœa was considered by Dr. Fox to be a functional and non-inflammatory disorder, though Cazenave described acné sebacée as an inflammatory disorder. Dr. Fox then dealt with the clinical characters assumed by seborrhœas in different regions and the doubtful character of some affections included under the term, and concluded this part of his paper with a notice of the older conceptions of the etiology. A new chapter was opened by the development of Unna's views as to the non-sebaceous character of both oily and squamous seborrhœa. The former, which should be called "hyperidrosis oleosa," was a pure exalted function of the sudoriferous or coil glands. The latter, which was a superficial catarrh of the skin (including tentatively pityriasis capitis), should be called "eczema seborrhœicum." Unna's proofs of the inflammatory nature of squamous seborrhœa and the derivation of the grease from the sudoriferous glands were given. The inflammation was, according to Unna, a specific one caused by a definite organism or organisms. Dr. Fox then referred to Sabouraud's views. According to that author pure oily seborrhœa was a microbial infection of the pilo-sebaceous follicles, taking place with the evolution of puberty. A micro-bacillus entered the follicle and the encysting of the colony took place with a formation of a cocoon in the upper third of the follicle. Then followed four reactionary phenomena—viz., sebaceous hyper-secretion, a progressive glandular hypertrophy, inflammation, and poisoning and death of the papilla. The results were the calvities or "alopecia areata" of Bateman. The engrafting of secondary organisms on this substratum of oily seborrhœa produced, according to Sabouraud, polymorphic acne and acne varioliformis, &c. These views were compared with Unna's views on acne, and Dr. Fox expressed his preference for the views of Sabouraud. Pityriasis capitis was a microbial infection independent of oily seborrhœa, according to Sabouraud, and greasy squamous seborrhœa was a desquamative dermatitis engrafted on oily seborrhœa.

Dr. RAYMOND SABOURAUD (Paris) made a communication on the same subject. It was most necessary, he remarked, in the first place, to limit the subject and to define the term "seborrhœa." This word was first used by Fuchs of Göttingen in 1840 to designate sebaceous excretion when it became visible on the skin and made it greasy. The word had been altered from its primitive sense by Hebra, who, under the name of "seborrhœa," designated not only true seborrhœa (oleosa) but also pityriasis (seborrhœa sicca). This was an absolutely deplorable confusion. Pincus, Piffard, van Harlingen, and then Unna, showed that the scale of pityriasis did not come from the depth of the sebaceous glands as Hebra had thought, but that these scales were produced by the exfoliation of the superficial horny epidermis. It was therefore necessary to separate pityriasis essentially from seborrhœa. It was their confusion which darkened all the subject. The forms of pityriasis—that was, of exfoliation of the horny layer—had a microbic flora, a peculiar and specific cause, namely, the grey-cultured coccus and the "bottle bacillus." They had a special elementary lesion—the scale. They might exist without any fatty state of the skin, and when they were found in connexion with true seborrhœa it was by superimposition of two diseases. They were grafted on to seborrhœic skin and not properly seborrhœic by themselves. Seborrhœa (in its etymological sense—flow of sebum) was the hypersecretion of the sebaceous glands. It was never scaly; it was always and exclusively fatty. It was this condition to which the term "seborrhœa" should be limited and which formed the topic of discussion that day. Having thus defined the malady Dr. Sabouraud proceeded to remark that seborrhœa existed in two forms: a moist type ("acne sebacea" of Biett, Cazenave, "flux sebaceus" of Rayer, "seborrhagia" of Fuchs, "seborrhœa oleosa" of H. Hebra, "steatorrhœa" of E. Wilson), and a cystic type (acne comedo or acne punctata of all authors). The elementary lesion of seborrhœa was a fatty plug which oozed from the sebaceous ducts when sebaceous skin was squeezed between the fingers. This plug was microbic; it was made up of pure fat containing an enormous quantity of very small bacilli, which existed under the form either of separate elements or of composite mycelial clumps. This microbic colony was absolutely constant and it was positively pure in each seborrhœic follicle. It existed in each follicle as soon as the sebaceous flow made the skin shiny and greasy. The second clinical form of seborrhœa was the comedo. The comedo was only the cystic transformation of a primitive seborrhœic plug. This special transformation occurred only in one seborrhœic plug among thousands of others which would persist as seborrhœic plugs and never became comedones. After a time the comedo was almost always infected by the common cocci of the human skin. The most common infection was by the grey-cultured coccus.[1] It made the red acneïc papule, the pustule of superficial or of deep acne (acne indurata), thus bringing about all the varieties of polymorphous acne. The comedo might be infected by more virulent microbes—for example, by the staphylococcus aureus. Thus was caused acne necrotica, varioliformis, acneïc furunculosis, chronic furunculosis of the neck, sycosis, and acne cheloid. This acne was only the result of infections secondary to the original micro-bacillar seborrhœa. Micro-bacillar seborrhœa and acne synchronised with the sexual development. Its localisations all centred round the vertical axial line, the centre of the face, the inter-scapular space, the back of the neck, the presternal region, a peri-umbilical ring, another perigenital, another perianal, and on the region of the sacrum. The localisation on the centre of the scalp gave rise to common baldness of man. Baldness was a micro-bacillar seborrhœa of the vertex. Each follicle which lost its hair was first invaded by a colony of the micro-bacillus. The phenomena of alopecia were similar on all the parts of the body, only on some of them they were less visible. The same micro-bacillus was certainly present in all seborrhœic manifestations, for cultures (which were in all cases difficult to obtain) were possible and were the same in all cases. These cultures grew on acid media; they were conical in form and of a red colour. In the cultures the bacillus had the same form, the same dimensions, and the same selective methods of staining (Gram). Dr. Sabouraud then described the procedure adopted to obtain cultures of this micro-bacillus and exhibited specimens of the cultures, drawings, and lantern slides. The conclusions to be drawn from his researches into seborrhœa were as follows:—1. The words "acne sebacea," "sebaceous flux," "seborrhœa," "seborrhagia," and "steatorrhœa" signified the same morbid phenomenon, which was hypersecretion of the sebaceous glands. This disease had a constant microbic expression—namely, the seborrhœic micro-bacillus. 2. From seborrhœa thus defined all acnes arose which were

[1] See Discussion on the Rôle of Cocci in the Pathology of Diseases of the Skin (Wednesday), THE LANCET, August 3rd, 1901, p. 403.

either the result of spontaneous transformations in the microbic seborrhœic plug or of secondary infections of the elementary seborrhœic lesion. Of course, seborrhœa constituted a cutaneous soil propitious for the development of a multitude of skin diseases differing in their cause and nature. There were, for instance, the seborrhœic wart of old persons, the molluscum contagiosum of Bateman, &c. There were also the various forms of pityriasis. 3. The different forms of pityriasis constituted a special and independent skin disease. They were not seborrhœic. They had a special lesion—the scale, which consisted of epidermic horny exfoliation. They resulted from a special microbic growth which was not a micro-bacillus. They were morbid processes entirely different from seborrhœa, but which were, nevertheless, frequently superimposed on seborrhœa. The seborrhœa was for them an elective ground and substratum. On seborrhœic skin they produced circinate pityriasis—the circinaria of Payne. On the scalp they caused dry and fatty pityriasis. The term "seborrhœic eczema" of Unna signified a hybrid mixture of pityriasis and seborrhœa, which was as frequent as pure seborrhœa, but the original clinical types of which must be all the more carefully distinguished, inasmuch as they generally co-existed on the same patient.

Dr. ALLAN JAMIESON (Edinburgh) doubted whether the fatty accumulation in seborrhœic dermatitis was due to microbic action, though the comedo was undoubtedly of microbic origin. In normal conditions if the skin was covered up a branny accumulation took place. Might not this be due to micro-organisms of a kind hitherto thought to be innocuous?

Dr. NORMAN WALKER (Edinburgh) remarked that the subject bristled with difficulties. What were the meanings of "seborrhœa oleosa" and of "pityriasis sicca." He had tried very hard many times to cultivate the organism to which Dr. Sabouraud referred, but had only succeeded once, in a case of hirsuties. Many suffered from oily skins but did not get bald. How was this to be explained on Dr. Sabouraud's statement that baldness resulted from seborrhœa? The term "seborrhœic eczema" was, he admitted, very unfortunate. As to the relation of seborrhœic dermatitis and psoriasis—conditions which Unna held to be identical, mainly on the grounds that they both started in the scalp—there were, without doubt, many cases of scurfy scalp in which it was very difficult to say whether the case was one of psoriasis of the scalp or pityriasis capitis. Seborrhœic dermatitis was a scaly catarrhal affection of the skin, a process differing essentially from seborrhœa. The fat glands were not, in his opinion, involved in seborrhœic eczema.

Dr. H. G. BROOKE (Manchester) remarked that he did not believe that there was any excessive exudation from the sebaceous glands. Seborrhœic dermatitis was no doubt an infective disease and the infectivity varied with the virulence of the organism. Fat was, he felt sure, formed in the epidermis cells and it was the destruction of the fat in these which led to pityriasis. The mutual dependence between psoriasis and seborrhœic dermatitis was clinically very evident.

Dr. J. M. MACLEOD (London) wished to refer to the question of alopecia of the patchy type which occurred so commonly in children. In six patients who averaged nine years of age he had excised small pieces of skin which were covered with sebaceous-looking plugs, but he had found no great alteration of the sebaceous glands. In all of them there were œdema and proliferation of rete Malpighii. Near the orifices of the follicles there was a deficiency of the granular layer. These changes amounted to an acanthosis and œdema and to a certain extent a parakeratosis. The conditions, therefore, were those of seborrhœic dermatitis. Micro-organisms were very difficult to find in the skin.

Dr. HENRY WALDO (Bristol) remarked that the subject was very much simplified by their being able to exclude seborrhœa sicca. Did seborrhœa oleosa depend on organisms or not was the main question before them. He had always regarded coronal baldness as unconnected with seborrhœa. It was not a curable affection. Could alopecia areata be treated by the hypodermic injection of toxins? Seborrhœa was often associated with lupus vulgaris and lupus erythematosus. Was there any association between these diseases and the micro-bacillus referred to?

Dr. T. D. SAVILL (London) wished to ask Dr. Sabouraud how he explained the production of two such clinically distinct lesions as the comedo and papule of acne and the papules and oily scales of seborrhœa by the same micro-bacillus? The fact of acne arising chiefly at puberty was not for him a fact against the bacillary origin of that disease. There was at this epoch of life a sudden outburst of physiological activity in all the seborrhœic glands throughout the body, as witnessed by the appearance of hair in various regions, and this offered a predisposition for pathological activity also. He thought that the grouping of alopecia areata, acne, and the various seborrhœic processes under one pathological factor threw a flood of light on these affections. But the question which he had asked offered, he believed, considerable difficulty.

Dr. DUBREUILH (Bordeaux) regarded the hypothesis suggested by Dr. Sabouraud as a most plausible and most satisfactory one. He wished to allude to the clinical aspect and the greatest difficulty to his mind was that baldness was not by any means constantly associated with seborrhœa. Many greasy-skinned people did not lose their hair and others who became bald had not greasy skins.

Dr. LESLIE ROBERTS (Manchester) thought that the clinical picture of the disease was too well established for them to be able to throw over the term "seborrhœic eczema." It was quite likely that there was still some connexion between seborrhœa and eczema. The former might prepare the skin for the latter, and although there were objections to the name he doubted the expediency of removing it from the nomenclature of dermatology.

Dr. COLCOTT FOX, in reply, remarked that in certain cases of alopecia they could almost invariably find that some of the sebaceous follicles were plugged. As regarding the cause of death of the hair there were two opposite views. Dr. Sabouraud held that the fall of hair was due to the action of a toxin on papilla whence the hair grew. On the other hand, Dr. Unna held that the fall of hair was produced by the plugging of the hair follicle. As to the connexion between seborrhœa and psoriasis his view was that although in the scalp it was very hard to distinguish them that was no reason for confusing two such distinct diseases.

Dr. SABOURAUD, in reply, remarked that the more a woman had a tendency to hair on the face the more she had a tendency to seborrhœa. All the seborrhœic localities were at or near the median line of the body; they were axial in distribution. On the other hand, as regards men, there was no baldness without seborrhœa. In reply to Dr. Savill's question he remarked that the same microbic process was capable of producing both an acne and seborrhœic papule because of the mechanical conditions—the blocking of the follicle and the superimposition of other cocci upon the seborrhœic process.

Dr. LESLIE ROBERTS read a paper on

The Action of Arsenic on the Healthy Tissues of the Skin.

He commenced by remarking that they could learn more of the action of arsenic on the tissues of the body from the study of its chemical properties and elementary action than they could from mere clinical experience. He dealt first with the wide distribution of arsenic in nature and then passed on to consider its dynamic action within the body. He was of opinion that the histological changes produced in the tissues by arsenic were not directly due to the arsenic itself but to the agency of nascent oxygen produced by the action of cell-protoplasm on arsenious acid and arsenic acid. Having discussed the question of the normal distribution of arsenic in the human body Dr. Leslie Roberts then passed on to consider in their order the effects of arsenic oxidation on the tissues of the skin—namely, (1) pigmentation, (2) hyperkeratinisation, (3) desquamation, (4) atrophy, and (5) fatty degeneration. He concluded that arsenic was not merely a drug possessing curative powers; that it was not necessarily an irritant poison; that arsenic was not a poison in itself but that its action was initiated and determined by the tissues themselves; that its effects were essentially of a nutritive order brought about by the agency of nascent oxygen; that these effects were beneficent to the organism when the oxidation was slow but injurious when too rapid; and that the more highly organised the cell, the more unstable its protoplasm and the more rapid its metabolic processes, so much the more readily did it feel and manifest the dynamic action of arsenic.

Dr. H. RADCLIFFE CROCKER (London) and Mr. GEORGE PERNET (London) contributed a paper on

Epithelioma Supervening on Arsenical Keratosis.

Cancer as a result of arsenical keratosis was sufficiently rare for any fresh case to be placed on record. The subject

had been dealt with recently in Nielsen's paper on Melanosis and Keratosis Arsenicalis.[2] The patient forming the subject of the paper was a man, aged 60 years, who consulted Dr. Radcliffe Crocker in March, 1900, for a small painful sore situated on the ulnar border of the right hand close to the metacarpo-phalangeal joint of the little finger, and of six months' duration. It had begun as a "mattery speck" two years previously and it had gradually increased in size. There was an enlarged gland in the corresponding axilla. There had also been a sore of the left index finger which had healed. Scattered about the hands were several small warty specks and the epidermis was slightly pitted, but there was not general arsenical keratosis. The patient had suffered from psoriasis from the age of 20 years, for which he had had arsenic, but he had not had any treatment for 38 years, and as far as he knew he had not taken arsenic since then. On the whole the psoriasis had got better the last two or three years. The growth was excised in April, 1900, by Mr. James Cantlie, but it returned in October. Histological examination of the growth removed at the first operation showed proliferation of the prickle cells of the epidermis and in parts commencing invasion of the corium. This was much more marked in the tissues removed at the second operation. Keratosis and acanthosis with epitheliomatous growth, together with leucocytic cell infiltration of the papillary and deeper layers of the corium, were noted. Numerous mast cells were present, especially about the sweat coils. Interesting features of the case were that the warty growths persisted so long after the arsenic was left off and that from these the cancer developed after so long an interval.

Dr. ELDON PRATT (Cardiff) read the notes of

A Case of Purpura Hæmorrhagica Associated with General Tuberculosis.

The patient was a man, aged 27 years, who was admitted with pyrexia (the chart of which was exhibited). Three weeks later there were epistaxis and hæmaturia and melæna. A few crepitations were heard in the lungs. Suppuration of the parotids occurred. Repeated hæmorrhages occurred and purpuric eruption appeared. At the necropsy generalised tuberculosis was evident.

THE ANNUAL MUSEUM.

(*Concluded from page 483.*)

V.—MINERAL WATERS, BEVERAGES, &c.

Cheltenham has mineral waters of its own and this fact possibly accounts for the comparatively small number and variety of exhibits displayed in this section. The Cheltenham Corporation have acquired the chief springs and undertake the supply of the waters. At the Montpellier Spa there are two distinct waters, one containing a notable amount of magnesium sulphate in association with sodium salts, while the other is an alkaline saline water without magnesia. The sulphated water may be regarded as a mild Carlsbad water, having a similar therapeutic effect. It, however, may be taken in a concentrated form, the water being evaporated down to a convenient strength for the purpose. Messrs. Schweppes, of 53, Berners-street, London, W., exhibited specimens of the Malvern waters, both plain and aerated. The purity of Malvern water is well known. In addition, this firm exhibited some porcelain-lined syphons, the construction of which we have previously described. It need only be added that the precautions taken by Messrs. Schweppes to ensure the purity of mineral waters in bottle or syphon are admirable. A very interesting model of the Roman Thermæ at Bath was exhibited by the Bath Corporation. In the report of THE LANCET Commission on "Bath as a Health Resort," published in THE LANCET of Oct. 14th, 1899, p. 1055, a reproduced picture of these interesting remains was printed. The analyses of the waters made in THE LANCET Laboratory were also given in this report at some length. Specimens of the well-known mineral waters of Harrogate were shown by the Harrogate Corporation. Amongst these were the well-known sulphuretted hydrogen waters and chalybeate waters. Models were shown of the various bath appliances used in Harrogate as well as photographic views. The natural waters of Vichy in bottle were shown by Messrs. Ingram and Royle of East Paul's Wharf, 26, Upper Thames-street, London, E.C. The exhibit included Vichy salts and pastilles and also the Carlsbad natural mineral waters and the genuine Sprudel salt. They are also agents for the supply of the natural aperient water, Hunyadi Janos, specimens of which formed a feature of the stall. The Apollinaris Company of 4, Stratford-place, Oxford-street, London, W., had a large well-decorated stall on which were specimens of Apenta water and Friedrichshall water as representing natural bitter waters, and Apollinaris and Johannis as sparkling table waters. The latter is now supplied containing added lithia or potash. The exhibition of these drugs in a natural water probably presents some advantages. The saline and chalybeate waters of Leamington were shown by the Corporation of Leamington. The waters may be obtained plain, aerated, or concentrated. The managers are keenly alive to the requirements of visitors and some important improvements have recently been made in regard to the equipments of this "Royal spa." An interesting series of the natural wines of Australia was shown by the South Australian Government Bonded Depôt (Walbrook, London, E.C.). They are known as the "Orion" brand and include wines of the claret, burgundy, and hock types. In addition was shown the "Orion" liqueur brandy, a pure wine spirit, as we have already indicated in our analytical columns. Stower's lime-juice cordial and clarified lemon squash were exhibited on the stall of Messrs. Alexander Riddle and Co. of 36 and 38, Commercial-street, London, E. The point about these preparations is that the aroma and flavour of the fresh lime and lemon respectively are retained in the expressed juice. Close by, Messrs. Stephen Smith and Co. of Malmesbury-road, Bow, London E., submitted specimens of various wines to those who cared to taste them. These included coca wine, beef wine, and a special burgundy. The exhibition of Messrs. Feltoe and Smith of 25, Augustus-street, Regent's-park, London, N.W. comprised their "specialité" lime-juice cordial and lemon squash. Some excellent "lemon-squash crystals" were also shown which are useful for the extemporaneous preparation of a refreshing lemonade.

VI.—PUBLICATIONS.

There were several stalls devoted to the display of medical works, temperature charts, clinical tables, &c. This section is a comparatively new feature of the exhibition, and is of increasing interest judging from the number of medical visitors found turning over the pages of the publications submitted. The following publishers were represented:—Messrs. Rebman, Limited, of 129, Shaftesbury-avenue, London, W.C. (this firm also exhibited various therapeutic serum preparations contained in hermetically sealed flasks); Mr. B. Allsop, of the *Times* Office, Shipley, Yorkshire, who demonstrated his handy A.B.C. system of medical bookkeeping; Messrs. John Wright and Co., of Bristol; Mr. Henry Kimpton, of 13, Furnival-street, Holborn, London, E.C.; Messrs. W. B. Saunders and Co., of 161, Strand, London, W.C., and Philadelphia; and Messrs. Macmillan, of St. Martin's-court, London, W.C.

VII.—MISCELLANEOUS.

What we have chosen to classify as the miscellaneous section of the exhibits presented a novel feature this year in the shape of an exhibit of motor cars and broughams for medical men. Mr. D. H. Morgan, for example, of Clarence-street, Cheltenham, exhibited a three and a half horse power motor car with two speeds and fitted with a hood. Mr. Alfred Miles, of Cheltenham, showed a collection of carriages comprising light broughams, phaetons, and carts. Similarly Mr. W. B. Moore, of Stourbridge, has designed a hooded gig specially adapted for medical men, whilst in addition he showed a neat one-horse ambulance. Messrs. Boyd and Co., of 296, Regent-street, London, W., exhibited an ulster for the use of medical men and a woollen material called "naquatum," which is said to be porous though absolutely waterproof. The "Aertex" cellular clothing of the Cellular Clothing Company, Limited, of 72 and 73, Fore-street, London, E.C., was inspected with interest. This clothing is designed to protect the body as well as to allow the escape of excretory products. It is, therefore, adapted for garments worn next to the skin. Office time-saving appliances were represented in the "Ceres" automatic letter and card files, the invention of Mr. T. Bowater Vernon of 10, John-street, Adelphi, London, W.C. We have already pointed out the excellence of this system of keeping letters and papers in their place and where they can be found. The system is of acknowledged usefulness to medical men and we understand that it is in use in many hospitals.

[2] Selected Essays and Monographs, New Sydenham Society, vol. clxx., 1900, p. 249.

Correspondence.

"Audi alteram partem."

"THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION AND THE REPORT OF THE CONSTITUTIONAL COMMITTEE."

To the Editors of THE LANCET.

SIRS,—The letter of Dr. John Ince in THE LANCET of August 17th, p. 489, must have been perused with much interest by many of your readers. Dr. Ince is quite right in supposing that the "coercion" proposed by the British Medical Association would be resented, and that the formation of the profession into a trades union would be considered derogatory. The General Medical Council alone has legal authority to coerce, and men with the courage of their convictions will snap their fingers at laws which there is no power to enforce. There is no trades union, so far as I know, which does not aim at promoting the sordid interests of its own particular class and at ignoring absolutely the welfare of the community at large. It is not difficult to foresee what the opinion of the general public will be with regard to the first learned profession which ventures to become a trades union by imbibing the philosophy of the joiner, the bricklayer, the dock striker, and the like. It seems to me that the medico-political agitator has arisen within our own ranks, and that he will, if he can (but he cannot), compel all and every one of us to obey all such rules, financial or ethical, as he can persuade a majority to formulate. And in the voting for such rules the rawest recruits, the least experienced and the lowest qualified, will exercise an equal vote with the oldest, the most experienced, and the best qualified members of our profession. By all means let us urge upon the General Medical Council all such reform as is needed, but to set up a rival authority whose weapon, in the absence of legal power, could only consist of boycottings, of ostracisms, of slanders, and of refusals to call into consultation those who might not belong to the medical trades union, would only be to court degradation of the profession and unending strife.

I am, Sirs, yours faithfully,

JAMES RYLEY, M.D. Lond.

Great Yarmouth, August 20th, 1901.

HARVEST BUGS.

To the Editors of THE LANCET.

SIRS,—The effects produced by the bites of the "harvest bug" are so remarkable, so unpleasant, and in certain districts and seasons so common that it is strange that almost no attention is paid to the subject in medical literature. I can find no reference to it in any text-book on medicine or dermatology, and it is not found in Neale's Digest. The animal is a minute, bright scarlet, almost spherical, six-legged larva of the *Trombidium holosericum*—Linn.: of the family Trombidium, order Acarina. This red larva is known as *rouget* in France, and its life-history has been fully investigated by M. P. Mégnin. The eggs producing the larvæ are laid in June and July and the larvæ are active and numerous during July and August; at the end of the latter month they disappear and hibernate, eventually becoming eight-legged nymphæ which are vegetable feeders and of two sexes. The larva has sharp mandibles with which it burrows under the skin of its host and imbibes blood or juices, swelling up to about five times its original size, the head and thorax remaining the same bulk as before. It inhabits dry, grassy places on chalky soil and near the sea. It exists all over Europe, even in Scotland and Norway, and a form probably identical is found in Mexico. It attaches itself to domestic and furry animals (rodents, &c.), and even to other insects. It finds its way on to human beings by their feet, commencing to bite round the ankles. The bites are generally limited to the ankles, the waist (in women), and round the neck and upper chest. The bites are peculiarly virulent to many ladies and children, forming in a few hours small circular ulcers which itch and burn more than any other insect bite, though the inflammatory swelling is very slight. They are said by van Beneden to attach themselves to the roots of hairs, but this has never been the case in the severe instances in which my advice has been sought. They travel with great activity about the body and it is quite impossible to catch them. They comparatively seldom attack men, as very moderately thick stockings and drawers prevent them from biting. The open-work stockings worn by ladies give them an excellent opening for attack. In many women they produce an acute urticaria which is not limited to the seat of the bite, but may affect the whole body. This severe constitutional effect is said to be rare in England, but I have seen it occasionally and it has evidently been frequent this summer from the enormous numbers of the acari produced. I noted them trooping by dozens out of a garden in the Isle of Wight over the window-sills into the rooms. During the heat of day they seem to remain quiescent and mostly begin to bite in the late afternoon. Many persons are peculiarly susceptible to insect bites and apparently peculiarly attractive to insects, and in such subjects the constitutional disturbance produced by the harvest bug is very great and renders life a burden for many weeks in hot summers.

The only remedies are to keep the grass near the house well mown and watered, to wear thick stockings and close-fitting drawers, and to keep the ankles and legs covered with some essential oil (eucalyptus with a small quantity of clove oil), and not to sit out of doors. To find the larva under the skin and dig it out with a needle is commonly recommended, but it is an almost hopeless task.

The best account of the life-history of this pest is in "Annales des Sciences Naturelles," sixth series, vol. iv., 1876.

I am, Sirs, yours faithfully,

Westerham, August 21st, 1901. A. MAUDE.

*** The intense irritation set up in many people by these annoying little creatures is well known to us. As a matter of secondary interest we may remark that there seems to be some doubt as to what a "harvest bug" really is. The opinion of Mégnin as given above is that the bug is the hexapod stage of *Trombidium holosericum*. But according to Gould's "Dictionary of Medicine," the harvest bug, or *rouget* of the French, is the *Tetranychus autumnalis* of Shaw, otherwise *Leptus autumnalis* or *Trombidium autumnale*. However, as all of these animals produce similar effects it perhaps is not of much practical moment to which species the harvest bug exactly belongs. Possibly the application of a solution of calcium chloride might relieve the intolerable itching, or the internal exhibition of the drug might obviate the effects of the bite, but for prevention the measures cited by Mr. Maude appear to be the only feasible methods of escape.—ED. L.

"THE DEGRADATION OF FOOD."

To the Editors of THE LANCET.

SIRS,—All readers of THE LANCET will recognise the services you render to the community by your unceasing attention to questions of public hygiene. But the sleepless watchman is apt at times to be deceived by his own vigilance, and an annotation in your issue of August 10th, p. 382, on "The Degradation of Food" seems to show that you have not altogether escaped this danger, as there probably never was a time at which the bulk of the people's food was so wholesome as it is at present. Your illustration on the subject of jam does not seem to me to be particularly happy. Home-made jam is certainly made without glucose, and every housekeeper knows how terribly apt home-made jam is to crystallize; lumps of sugar of the size of a bullet are frequently met with in the domestic jam-pot. The warning against roller-milled flour certainly comes rather late now that all the millers of this country have transformed their plant, but the main thing to note is that it really matters very little even if bread is slightly less nutritious than it used to be. There are very few people who eat much bread at the present day and this being so a slight falling-off in nutrition really amounts to nothing at all. Your complaint about the flavourless bread has certainly this much truth—that bakers are disposed to give too much attention to colour and not enough to flavour. But the diminished consumption of bread arises simply from the increased wealth of the people. Formerly a large proportion of the population lived

chiefly upon bread because they could not afford to buy anything else. Times have changed since then and bread has lost a good deal of its importance. It has gone out as a necessity and it has yet to come in as a luxury. At the same time any resident in London or any large town can have the most palatable and perfect bread possible if he would only take the trouble to look for it. He may be certain of one thing, that housewives, now they have once been emancipated, will never again return to the bondage of home-baking.

I am, Sirs, yours faithfully,

EDITOR OF THE BAKER AND CONFECTIONER.

Chancery-lane, London, August 14th, 1901.

*** The defence that modern conditions of life make substitution a necessity was to be expected. But the defence is unsatisfactory. Cane sugar crystallises, and therefore jam or marmalade cannot be made with it any longer. Would glucose be used in substitution if it cost three times as much as cane sugar? Of course it would not.—ED. L.

"FATAL INTESTINAL HÆMORRHAGE IN PNEUMONIA."

To the Editors of THE LANCET.

SIRS,—The very interesting paragraph on fatal intestinal hæmorrhage in pneumonia on page 460 of THE LANCET of August 17th might give the impression that pneumococcic colitis was not described in this country. Therefore it seems only fair to English medicine to point out that pneumococcic colitis will be found described on page 942 of the article "Diseases of the Colon" in vol. iii. of Allbutt's System of Medicine, published four years ago.

I am, Sirs, yours faithfully,

Harley-street, W., August 19th, 1901. W. HALE WHITE.

THE MEDICAL GUILD.

To the Editors of THE LANCET.

SIRS,—I have the honour to forward you the following resolutions which were unanimously passed at the last meeting of the Medical Guild, Manchester, on July 26th, as follows:—

(1) That in the opinion of the Medical Guild, seeing that vaccination is made compulsory in the interest of public health, the parent or guardian of a child should have the right to select any registered medical practitioner, who is willing to do so, to perform the vaccination, and that the cost of the same should be defrayed by the State at a fixed rate.

(2) That, in the event of the foregoing resolution being passed, the Council be requested to consider what steps can be taken to influence future legislation on the subject.

I am, Sirs, yours faithfully,

Manchester, August 17th, 1901. DAVID OWEN.

THE STATISTICS OF DIPHTHERIA.

To the Editors of THE LANCET.

SIRS,—From time to time a communication is published drawing attention to the marked decrease in the death-rate which has followed the introduction of antitoxin. In looking over the 1899 report of the medical officer of health of the County of London a diagram showing the annual rate of deaths from diphtheria calculated per 1000 of the population, struck me forcibly in this connexion. It showed that for the last two years given, 1898 and 1899, this rate was almost identical with the actual mean rate of the last 40 years, while a table pointed out that the death-rate calculated on the number of notifications has fallen from 23 to 14 in the last 10 years. These apparently incompatible results raise questions which are not easy of solution.

If we assume, as in the face of all the clinical evidence we are bound to assume, the inestimable value of the antitoxin treatment, we are met by the obvious difficulty that increased isolation (the Asylums Board hospitals now take 60 per cent. of all notified cases as against 30 per cent. previously), improved sanitary arrangements among the poorer classes, and increased efficiency of treatment have not prevented an outbreak of diphtheria which for purposes of comparison with previous years should be represented by a population death-rate of 0·73 instead of 0·43. That is to say, that if we assume the value of antitoxin and leave it out of question for the moment the former 23 per cent. notification death-rate applied to the notifications of the years under examination would give 0·73 deaths per 1000 living, thus showing how formidable is the epidemic in question. If, on the other hand, we assume that the antitoxin treatment has only stimulated the powers of notification of the profession and has had no effect on the actual number of deaths we make a serious charge against the treatment. That charge receives very considerable support from the diagrams shown of Metropolitan Asylums Board hospitals. In the first is shown the ratio of deaths from diphtheria in hospitals to deaths from diphtheria in London, and in the second the ratio of admissions to notifications. Year by year for 10 years these ratios are almost identical. That is to say, that the introduction of antitoxin has not improved the treatment of cases in hospital as compared with the total cases in London. For example, in 1883 30 per cent. of the total cases notified were treated in hospital and 30 per cent. of the total deaths occurred there; in 1893 60 per cent. of the total cases notified were treated in hospital and 60 per cent. of the total deaths occurred there. Such a stimulation of notification as I have suggested would result in an increase of cases with no change in the number of deaths, the result statistically being a fall in the case mortality.

The three most potent factors in the spread or retardation of such a disease as diphtheria are isolation, sanitation, and aggregation. I propose to take as an example of each of these factors scarlet fever, enteric fever, and measles, and to compare the increase or decrease of the population death-rate of each. In none of these diseases has there been a radical alteration of treatment and the spread of each is regulated in the main by only one of these factors.

Table showing the Death-rate per 1000 of Living in various Diseases.

—	1899.	Mean of period from 1868 to 1898.	Mean of period of longer duration.
Diphtheria	0·43	0·49	0·43
Scarlet fever	0·09	0·21	0·54
Enteric fever	0·17	0·13	0·19
Measles	0·47	0·62	0·58
Whooping-cough	0·38	0·54	1·49

On the face of it such a table would suggest that if any specific has been found it would not be for diphtheria, but for scarlet fever or whooping-cough. First, as to scarlet fever, the population death-rate has gradually fallen from 0·21 to 0·09 per 1000; the case death-rate in the Metropolitan Asylums Board hospitals has fallen from 12·2 to 5·9 in the course of 23 years. If isolation has any effect on diphtheria it should, as in scarlet fever, reduce not only the case-rate but the population-rate *pari passu*; isolation has increased, as I pointed out previously, from 30 to 60 per cent. of the total number of cases. Secondly, as to enteric fever, the march of sanitation has reduced the population death-rate from 260 per 1,000,000 to 130 per 1,000,000 in the course of 20 years; 1899 was a bad year and considerably above the average. Thirdly, as to measles, it has been asserted that this outbreak of diphtheria of such magnitude is due, in part at any rate, to the aggregation of children in board schools, and the fact that the proportion of notified cases within the school age (from three to 13 years) has increased in 10 years from 50·9 to 62·9 per cent. of the total notifications is adduced as evidence. We should expect therefore to find a similar rise in the population death-rate of measles. Measles is, of course, very variable in its incidence, but the table shows definitely that on the whole the aggregation of children has not increased the population death-rate from measles. We must also bear in mind that the number of children attending school increased during this period very considerably, and that at this period of life follicular tonsillitis is most common.

Hence we find in conclusion that a disease subject to fluctuations dependent on causes which have steadily produced a fall in the population death-rate of other similar diseases, and further aided by a treatment which has almost halved the case-mortality, has yet achieved the distinction of remaining steady at the mean population death-rate of the last 40 years. There are two possible solutions of the difficulty: (1) antitoxin is a failure and the attention drawn to the disease has resulted in greater accuracy in notification; and (2) for some unknown reason a cause not acting on the like diseases had induced a widespread epidemic, modified

by the antitoxin treatment. Which of these is the right interpretation time alone can tell us. Meanwhile we shall doubtless continue to notify and to inject as before, recognising that as far as statistics go antitoxin is still on its trial.

I am, Sirs, yours faithfully,

DONALD F. SHEARER, M.B. Oxon., F.R.C.S. Eng.
Upper Richmond-road, S.W.

OBSERVATIONS ON THE ALTERNATE ERECTILITY OF NASAL MUCOUS MEMBRANE.

To the Editors of THE LANCET.

SIRS,—Every observer who is in the habit of examining the naso-pharynx with the rhinoscopic mirror has noticed that the mucous membrane covering the turbinated bones undergoes erectile changes at times. Strong cocaine solution is used to determine whether this is really erectility or inflammatory change. Actual inflammation or polypoid growths do not disappear after cocaine application. From personal experience, gained by passing my tongue into the naso-pharynx, I may assert that the mucous membrane of the nasal air-passages becomes alternately turgid and relaxed. Every man can satisfy himself by observing in his own body that air does not go in with equal freedom through both the nasal air-passages simultaneously; it blows through each nasal passage for an hour or so with clockwork-like regularity. The cause of obstruction in the free passage of air through one of the nasal passages is the turgidity of the mucous membrane covering the turbinated bones of that side. I know many individuals who can feel this turgidity like myself with their tongues. The mucous membrane of the obstructed side is felt to be hotter than that of the side through which the air blows freely. This erectility of the nasal mucous membrane has been well described by Dr. McBride in his valuable work on "Diseases of the Nose, Throat, and Ear." Sir T. Lauder Brunton also speaks of this erectility in his lectures on the action of drugs. He thinks that this erectility is necessary for warming the cold air going into the lungs. These writers, however, do not recognise or explain the phenomenon of this rhythmically alternate erectility of the nasal mucous membrane. Of course, we can trace the phenomenon to the vaso-motor influence presiding over the blood-vessels of the mucous membrane of the erectile side. But the clockwork-like regularity with which the mucous membrane becomes turgid alternately on each side is a very remarkable feature which we cannot explain at the present state of our knowledge. I bring this fact to the notice of the scientific world because though unknown to the Europeans, as far as I have been able to ascertain from their published books, it was known to the ancient Hindus as early as in the Vedic period.

It will not be out of place here to say a few words on the art of passing the tongue into the naso-pharynx. When I showed to some of the professors of the Medical College, Calcutta, how my tongue goes into the naso-pharynx they thought that this power was something peculiar to my family. This is, however, not so; as I have already noted, it is an art which can be acquired by every man. There are different processes, the best and the safest of which is the one I am going to describe. The front part of the dorsum of the tongue is fixed to the hard palate and the lower jaw is lowered as far downward as practicable and raised alternately. This exercise lengthens the fibres of the tongue-muscles and at last, when by practice the tongue is sufficiently long, it can be easily passed into the naso-pharynx. The anatomical details as felt by passing the tongue into the naso-pharynx are as follows. The tip of the tongue can be made to rest on the under surface of the body of the sphenoid bone. The posterior border of the vomer can be distinctly felt in front and if the tip is made to enter through one of the posterior nares, the turgid mucous membrane of the obstructed side appears to be hot and swollen like an onion. The turgidity of the mucous membrane yields to the slightest pressure of the tip of the tongue but reappears, owing to its elastic nature, as soon as the pressure is removed. On the side through which air is passing the mucous membrane is not at all swollen or as warm as on the other side and the inferior and middle meatuses can be distinctly made out. The openings of the Eustachian tubes and other anatomical details are also clearly felt.

That the Hindus observed the phenomenon of alternate erectility as early as the Vedic period is corroborated by the names they used to describe the cycle of rhythmic erectility of the mucous membrane of each side of the nasal cavity. Thus it is said that when air blows through the left nasal air-passage with ease and the right air-passage is partially or completely blocked, it is an index of the prevalence of what in Vedic language is called *irha-narki*. So, when air blows through the right nasal passage and the left one is blocked, the condition is designated to be the index of the prevalence of *pingala-narki*. When air goes in with perfect freedom through both the nasal air-passages (this momentary condition obtains in the interval between the appearance of erectility on one side and the disappearance of it from the other), the condition is taken to indicate the prevalence of *susumna-narki*. The ancient Hindus went so far as to observe that from the first three days after full moon air would be blowing through the right nasal air-passage during the first hour after sunrise; and the first three days after new moon air would be blowing in the left nasal air-passage during the first hour after sunrise. Then the reverse takes place in each case for three days and so on. Anybody may satisfy himself as I have done by trying to verify this observation. As all the observations I have noted were made in healthy subjects it is unnecessary to say that the law does not hold good in disease.

In conclusion, I venture to expect that scientific men of greater abilities than myself will take up and work out this important subject.

I am, Sirs, yours faithfully,

HEMCHANDRA SEN, M.D.,
Teacher of Materia Medica, Campbell Medical School, Calcutta, Examiner in Anatomy, Calcutta University.

June 13th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—Dr. Walter Kidd calls my attention to a letter published by him in *Nature* of August 8th. In it I find that he allndes to the correspondence which has been carried on under the above heading in THE LANCET and that he is good enough to inform the readers of *Nature* that "the greatest vigour of assertion and multitude of words, if not greater logic, rests with the advocates of the view that alcoholism is a selective influence of value in the evolution of man and ought not to be interfered with by legislation. The reasons for this startling contention are numerous, but the justification rests ultimately on the doctrine of Weismann carried to the bitter end—viz., that acquired characters are not inherited. I submit that if it can be shown that on no other than a Lamarckian interpretation of certain small phenomena is possible, something may be done towards making a breach in a somewhat dangerous citadel." Dr. Kidd's controversial methods lack directness. It would have been more effective had he demonstrated his opponents' lack of logic to the readers of THE LANCET instead of hinting at them to the readers of *Nature*.

Here is the proposition I am challenged to refute: "In man hair is entirely wanting on the ungual phalanges of his hand and foot, very rare on the middle phalanges of either foot or hand, and always present more or less on the first row of phalanges in both foot and hand." Man is "the child of the monkey." "The monkey possesses hair on all the phalanges. The young orang possesses hair like that of the lower monkeys—i.e., on all the phalanges of foot and hand, though on the two terminal phalanges of the hand the hair is worn down and quite bristly, even though the animal is quite young." Dr. Kidd supposes that because the monkey has hair on the terminal phalanges and man has not, the absence of hair on the latter is due to the wearing down of hair in the former. He thinks no other explanation possible and he asks me to refute this proposition. I had expected a task less easy. His hypothesis involves the assumption that the wearing down of hair on the ungual phalanges so affects the germs situated in the far-distant testicle or ovum that the organisms which spring from them tend to reproduce the peculiarity the parent acquired. Clearly we ought not to accept a hypothesis so wildly improbable unless it can be shown that none other is feasible. Doubtless man is the child of the monkey, but not of the present-day monkey. Presumably both man and modern monkey sprang from a common stock. Its descendants, *pace* Dr. Kidd,

wore the hair down the ungual phalanges, but the monkey more than the man, since the monkey uses its foot as a hand. Will Dr Kidd explain how it happens that the modern monkey retains the hair whereas the man has lost his? The disappearance of hair on the ungual phalanges is only part of a general phenomenon. Hair has disappeared more or less completely from the whole of man's body except from his head, face, armpits, and pubes. What has caused the disappearance? The wearing-down of the hair. Well, but how? By what? How on any theory of "wearing-down," or, indeed, on any theory of the transmission of acquirements, was the sharp line of demarcation produced between the hairy and the practically non-hairy regions of the head? What wore down the hair on the face of the woman but did not wear it down on the face of the man? What caused its disappearance on the trunk and limbs? Clearly some agent or agents other than transmission of acquirements were productive of the change.

Dr. Kidd has challenged me to refute him and to the best of my ability I have done so. It is no part of my task to offer an alternative explanation. However, if he wishes I am quite prepared to do so. But in that case we shall have to enter into the mysteries of retrogression and sexual selection. Will Dr. Kidd tell us who stated that "alcoholism was a selective agent of value in the evolution of man which ought not to be interfered with by legislation"? I stated that it *could* not be interfered with since under the ordinary conditions of civilised life every attempt to do so had resulted in vastly increased drunkenness. Most certainly I have never advocated the atrocious doctrine that drunkards should be permitted or encouraged to drink themselves to death. Readers of THE LANCET who have been interested in the present controversy will find this and kindred topics made clear in a volume[1] which will be published in a few weeks.

I am, Sirs, yours faithfully,

Southsea, August 20th, 1901. G. ARCHDALL REID.

"HAY FEVER: ITS REMEDY."

To the Editors of THE LANCET.

SIRS,—While in no way desirous to detract from the merit of the treatment of hay fever advocated by Dr. Clement Dukes, one might reasonably suggest, in these days of accuracy, the advisability of a preliminary examination of the interior of the nostrils, if not before spraying, certainly before applying the galvano-cautery. But my object in writing is to say, as the result of personal experience, that extract of the suprarenal gland is very apt to decompose. It is possible that the preparation of adrenalin chloride in solution with normal sodium chloride may not be liable to this drawback, and on this point I am lacking in special knowledge; but, if only for convenience, I suggest the employment of the drug in fresh-made solution from tabloids, as is nowadays so general with hypodermics and antiseptics.

I am, Sirs, yours faithfully,

London, August 19th, 1901. LENNOX BROWNE.

"WAS LUIGI CORNARO RIGHT?"

To the Editors of THE LANCET.

SIRS,—Dr. Campbell's statement in his letter under the above heading in THE LANCET of August 17th, p. 487, that pappy food is a harmful diet for children can hardly pass without comment. Astounded by the dietary prescribed by an eminent authority on children's diseases (whose identity is immediately recognisable) he yet fails to suggest any other that might take its place. True, he bids us discontinue the use of pap, and give "any plain food provided it is of a kind which necessitates thorough mastication." The majority of foods which come in such a category strike me as being most indigestible. Should we substitute beef steak for the pounded meat to which Dr. Campbell objects? Must bread be given dry, and the child's gums torn—for at the age of 10 months only the incisor teeth have appeared—by the rusk which we are warned against softening into pap? I have frequently seen babies of the poorer classes suffer from a severe fit of choking on attempting to masticate a crust given by a well-meaning but ignorant mother.

It must be apparent to those who have had much to do with babies that it is wrong to attribute the presence of adenoids to an imperfect use of the jaws. During the first year of life the jaws and tongue are in almost perpetual movement; when not taking the breast or bottle the child sucks its fingers or "comforter," or champs so vigorously that its bib is quickly saturated with saliva. I would furthermore suggest that, as pap-feeding is adopted more systematically and to a later age by the better classes, one would expect to find among them a larger proportion of adenoids, whereas it is recognised that the disease more generally affects the children of the poor. We must surely have more evidence that pap feeding is wrong and more explicit directions as to new diet before we can abolish the system so carefully arranged by the well-known authority with whom Dr. Campbell disagrees.

I am, Sirs, yours faithfully,

Balham, August 20th, 1901. T. B. SELLORS.

[1] A Study in Heredity, by G. Archdall Reid, T. Fisher Unwin.

"AN IMPROVED METHOD OF PHOTOGRAPHING PATHOLOGICAL SPECIMENS."

To the Editors of THE LANCET.

SIRS,—Having for many years been interested in the uses of photography as an aid to the efficient pictorial representations of medical subjects I am glad to see Dr. Effie Prowse's note in THE LANCET of August 17th, 1901, p. 450, and though she describes therein the method for securing the best result with a fresh specimen, or with one which can be removed from its jar, yet it is only applicable to these conditions and would not be of service where it is desired to photograph a permanently mounted specimen in the ordinary round or oval museum jar.

For this condition after several experiments I found that the only satisfactory way was to immerse completely the jar in water contained in a large vessel or tank having dark-coloured, dull-surfaced back, bottom, and sides and a plate-glass front. With this tank the only source of reflection is the camera; this is prevented by covering it with the velvet focussing cloth, leaving the lens only showing. A description of a tank made to the above specification will be found in "The International Annual of Photography" for 1889; and this tank has proved so useful that it has been employed in the successful photography of many hundred pathological specimens, both fresh and preserved, and not, as originally intended, for mounted specimens only.

I am, Sirs, yours faithfully,

A. R. F. EVERSHED.

Great Winchester-street, E.C., August 20th, 1901.

"THE ELECTROLYTIC TRANSMISSION OF SULPHUR."

To the Editors of THE LANCET.

SIRS,—Having read Dr. F. W. Smith's article on the Electrolytic Transmission of Sulphur through the Skin in THE LANCET of August 10th, p. 371, and having gathered the impression that he considers such transmission as a new discovery, I feel it incumbent upon me to state that the electrolytic transmission of sulphur and other medicinal agents through the skin has been known and practised by my friend E. Savary de Rovigo for more than 10 years in London.

I am, Sirs, yours faithfully,

CHARLES J. NEPEAN LONGRIDGE.

St. George's Hospital, S.W., August 15th, 1901.

GREY'S HOSPITAL, PIETERMARITZBURG.—In reference to the reorganisation of this hospital a petition to the Governor from the Pietermaritzburg Branch of the South African Medical Association has been received at the Colonial Secretary's Office, Pietermaritzburg, and we are informed that action is being taken with a view, if possible, to meet the wishes of the reformers.

CORNWALL CONVALESCENT HOME FOR MEN, PERRANPORTH.—The ninth annual report of this home, which was founded and endowed by Mr. J. Passmore Edwards in memory of his mother, has been recently issued. It shows that during 1900 there were 101 patients admitted, the average stay in the home being 21 days, and the cost per patient being £2 12*s.* 2*d.* The financial statement showed a favourable balance of £116.

SANITATION AND SMALL-POX AT GLOUCESTER.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE anti-vaccinationists very generally allege that bad sanitation is the principal cause of small-pox. Consequently as Gloucester is a town where the anti-vaccinationists are exceptionally numerous it was natural to expect that particular attention would be given to sanitary matters, and that if, in spite of such action, small-pox did break out, then it would occur in those quarters where sanitary improvements had been least effective. It so happens, however, that the very reverse is the case. Though it would not be correct to denounce Gloucester as a particularly insanitary town it nevertheless cannot be said that any very special energy or exceptional concern has been displayed as regards dealing with the sanitary defects that do exist. Further and even more remarkable is the fact that perhaps the most effective sanitary measures that have been taken were followed, and not preceded, by the great small-pox epidemic. The drainage of the town is far from corresponding to the modern ideal of self-cleansing sewers. The existing system of sewerage for the city of Gloucester was commenced in 1852 and then the sewers were not only built in view of the future extension of the boundaries of the city but were exceptionally well constructed. Indeed, their construction was quite in advance of the times, though doubtless it may now be found that they do not correspond with the modern ideal. Then when, in 1875, the boundaries were extended the older system was connected with more modern but very inferior sewers that had been built by small local outlying authorities. Since then many of these sewers have been relaid and otherwise improved. That the system did not work well is proved by the fact that very bad odours escaped from the man-holes and occasioned many complaints. It was not till ten years later that this nuisance was finally removed. By that time 600 ventilating shafts had been put up. How far this may be considered a radical remedy is open to question. If the 600 shafts increased the amount of ventilation in the sewer then the evil would be lessened, and doubtless this was the case. But if not, then they only removed the nuisance to an altitude where it would not be perceived by people walking in the streets, but where it would be more likely to penetrate the bedrooms of the houses. As, however, I failed to find any record of complaints from the inhabitants of such bedrooms it is most likely that the shafts so stimulated the ventilation of the sewers that the air inside the sewers had not time to become impregnated with foul odours. Though this is an undoubted improvement, still it does not show that the sewers are in themselves all that can be desired.

There are in Gloucester three main collectors. The northern outfall sewer is 3433 yards in length. It commences with a 9-inch pipe and ends in a sewer measuring 4 feet 6 inches by 3 feet. The fall is 1 in 178. The central outfall sewer is 3000 yards in length and of the same size, but the fall is only 1 in 209. These drain the older parts of the town. They travel along the two sides of a circle and meet at the outfall, where they discharge their crude sewage into a narrow branch of the river Severn. This outfall is as the crow flies within some 500 yards of the Cathedral and the centre of the old town and above a weir which is situated at a short distance lower down the river. It is most important to note that this is a tidal river and, therefore, at flood times the sewage is forced back up the sewer, propelling also the sewer gases back into the town. This is so obvious a defect that in granting leave to extend the boundaries of the city the Local Government Board especially stipulated that these two sewer outlets should be abolished and the sewage discharged lower down the river beyond the weir. So far nothing whatsoever has been done to carry out this instruction. There are many material difficulties in the way. In the meanwhile and in spite of the more energetic ventilation of the sewers I am told that bad odours are still noticed when the sewer is tide-locked. The system of ventilation is that of utilising the man-holes which theoretically serve as air inlets, the ventilation shafts being in connexion with these man-holes. Sometimes, however, the current is reversed and the sewer air then comes out of the man-hole and on the street level. In that case I should imagine that the air descending the ventilating shaft scarcely penetrates the sewer but that the greater part comes out with the sewer air into the street, which it serves to dilute at the critical point of discharge into the street.

The third and southern outfall is much further from the town and below the weir, but this delivers only about a quarter of the total sewage of the town, and it is also thrown into the river in its crude condition. That three-quarters of the crude sewage should be discharged into a narrow branch of the river Severn as it passes by the north-western portion of the town, and at a point where its flow onwards must to some extent be impeded by a weir that is further down the river, undoubtedly constitutes a grave sanitary defect. Then the portion of the city nearest to this outfall is the oldest and the most overcrowded part of Gloucester. Here dwell some of the poorest inhabitants and we find the nearest approach to what might be qualified as slums. Under these circumstances it would be natural to suppose that if the great small-pox epidemic was due to bad sanitation the greatest number of victims would be living near to the water-logged portion of the sewers or where poverty and density of population were most accentuated. It is highly significant that the reverse was the case. To begin with, Gloucester has been remarkably free from drain water-borne diseases such as typhoid fever and diarrhœa. Instead of the north-western it was the south-western districts that suffered most. The density of population in the parts affected amounted to only 31·41 persons per acre. In the districts that were not affected there was a much larger population, amounting in one part to 64·3 persons per acre. Old houses, some of them thickly populated, with bad or at least inferior drains, existed in those parts of the city which completely escaped from the epidemic. But in the district affected the houses were all new and for the most part consisted of semi-detached villas. Therefore there were many gardens, plenty of fresh air, a higher state of well-being, and much less poverty and dirt than in the parts of the city where the epidemic did not spread. Thus the experience acquired at Gloucester does not at all confirm the theory that bad sanitation is the principal cause of small-pox. Indeed, if we are to judge men's beliefs by their actions, it does not seem as if the inhabitants of Gloucester had very much faith in this theory of the anti-vaccinationists, for they displayed no very great desire to secure the best sanitary conditions. Thus, for instance, they would not listen to the supplications of their medical officer of health when he urged upon them the necessity of having a disinfecting stove. That there should be some hesitation to burden the town with the expense of a vast scheme of drainage or other sanitary improvements can well be understood and excused. But the expense of a proper disinfecting stove and station involves only a trivial outlay. Nevertheless, a disinfecting stove was not purchased until after there had been many cases of small-pox and the authorities had realised that it would cost less to disinfect than to burn the infected clothing, bedding, &c.

The history of the small-pox epidemic has often been told. It is not necessary to repeat this well-worn story. Full details were given, notably in a paper read by the medical officer of health of Gloucester, Dr. John Campbell, to the Incorporated Society of Medical Officers of Health on March 19th, 1897. It will suffice to recall that Dr. Campbell then stated that there had been in all 1981 cases of small-pox. In analysing these figures he showed that the attacks of small-pox in properly vaccinated children were extremely rare up to the age of 10 years; that such cases as did occur under these conditions were not severe, and that deaths were almost unknown; but very few of the unvaccinated escaped when exposed to infection and then the mortality was very great; also none of the nurses contracted the disease, but they had all been properly vaccinated and revaccinated. It certainly seems as if the most effective measure taken to check the spread of the disease was vaccination; and it was interesting to note how rabid antivaccinationists promptly resorted to vaccination when they found that the danger was at their door. Dr. Campbell relates that the proprietor of the local daily paper (which waged ceaseless war against vaccination), who he believes was chairman of the local branch of the Anti-vaccination League, took good care to have himself vaccinated. It was this inconsistency, widely shared by the public at large, that finally saved the town. Had the epidemic been due to bad sanitation it would not have ceased so promptly, nor would it have spread so rapidly. Indeed, no important alterations were made in

the town that could account for the cessation of the epidemic. The patients could not even be isolated, for the isolation hospital only contained 16 beds, and though huts were hastily constructed they could not be built in time, nor were they sufficiently numerous to accommodate the majority of cases; thus only 742 cases were received in the hospitals out of the 1961 cases.

In conclusion, it may be said that in sanitary matters Gloucester cannot be qualified as a model city, but it cannot be denounced as being in an especially unsanitary condition. Like most towns it has its good and bad points, but the bad points had nothing to do with the epidemic, for it was precisely the districts they affected that escaped from small-pox.

Gloucester, August 20th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Precautions during Epidemics.

THE prevalence of continued hot weather brings in its train certain consequences. These might be largely preventable if only precautions were taken at the right time and an element of prudence and common sense was kept in reserve. In the weekly return of the medical officer of health of the city the total number of 92 deaths from zymotic diseases are recorded, of which 78 were from diarrhœa. This is a large number in a short interval and calls for comment as to the cause. The medical officer issues bills pointing out the precautions to be taken during the existence of the prevailing epidemic, but it is to be feared that these are seldom read, and still less often acted upon. Yet the mortality might be greatly reduced if these simple rules were followed. The injudicious feeding of infants and the indifference and carelessness associated with the bringing up of young children in big towns are the chief factors of so large a death-roll. Until a sense of responsibility can be instilled into the minds of the parents the advice of the Health Committee and the admonitions of the coroner are but as sounding brass and a tinkling cymbal.

The Dangers of the Brass Trade.

Birmingham owes a great part of its commercial success to the number of industries connected with the metal trade. Among these stand out prominently the various manipulations with brass, polishing being a fertile source of mischief from the dust produced. It is stated that the workmen object to the use of respirators during their work, that they often take their meals in the same room as that in which the work is done, and that they show a disinclination to wash their hands at any time during or after the process. An inquest was recently held on the body of a brass worker, aged 28 years, in which the medical evidence disclosed how frequently illness is engendered by this kind of work. It was shown that certain symptoms were common among this class when affected by the work in which they were engaged, such as pallor, discolouration of the teeth and gums, abdominal pain, vomiting in the morning, metallic taste in the mouth, night sweats, and general weakness, while inflammation of the stomach was usually present. It was also wisely pointed out that free ventilation, the use of respirators, and periodical medical examination of the workmen would go far towards mitigating the spread of the diseases which are caused by this kind of work. The inspector of factories explained that a special Government inquiry was made a few years ago and that certain rules were drawn up for those working in brass-casting shops, but that these could not be enforced in those where polishing only was done. The coroner observed that the attention of the Home Office should be called to the matter and promised to make a representation in that quarter.

Analysts' Certificates.

A case of much interest to dispensing chemists was recently brought before the Birmingham Police-court. A sample of compound tincture of benzoin was said to be below the standard of the British Pharmacopœia. The case was adjourned in order that the sample might be sent to the Government laboratory. The certificate from this source was at variance with that of the medical officer of health of the city; the bench therefore considered that the defendant was entitled to a discharge. Evidently opinions differ on what might well be looked upon by outsiders as matters of fact.

Vacation Difficulties.

The universality of August as a holiday month causes great trouble in finding substitutes for official work or private practice. As much as six guineas a week is being offered without success for a locum-tenent to take duty during the absence of a principal.

August 20th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Seamen's Hospital.

AT a meeting of the committee held on August 13th it was stated that the estimated cost of the new hospital was £30,000. Towards this sum £13,159 have been already received and a further sum of £3597 has been promised. The trustees of the late Marquis of Bute will contribute £13,242, and if the above-mentioned promised subscriptions are not received by the committee, the trustees will make good the deficiency.

Monmouthshire County Council.

At the meeting of the Monmouthshire County Council held on Aug. 7th a report was presented by the chairman of the Sanitary Committee upon the sanitary condition of the county, being, in fact, a digest of the annual reports of the district medical officers of health. The population of the administrative county at the last census was 230,000, an increase of 27,000 during the past decade. This is not a large population nor is the increase very great compared with other counties, but there are in Monmouthshire a large number of rapidly increasing colliery villages and many of them are in anything but a satisfactory state as regards water-supply, drainage, and the housing of the inhabitants. The county council appears to be quite aware of the circumstances connected with these villages, and one member regretted that the powers of the council were merely advisory—an extraordinary statement in view of the fact that the council possesses very ample powers as regards the provision of isolation hospitals and the prevention of the pollution of rivers. The district councils would, no doubt, attach greater weight to the recommendations of the Sanitary Committee if the county council would itself exercise its own powers—not the least of which is the appointment of a county medical officer of health, a duty which the council has persistently refused to perform.

The New Dietary at Bristol Workhouse.

When the Bristol Board of Guardians were discussing early in the present year the adoption of the new dietary for the workhouse inmates it was anticipated that the change would certainly involve an increased annual charge. The report for the first three months ending midsummer last during which the new dietary has been in operation shows that not only has there been no increase in the expenditure, but that an actual saving has occurred. At the Stapleton Workhouse there was a saving of £130 compared with the corresponding quarter of 1900. It is true that there were slightly fewer inmates in 1901; on the other hand, at the Eastville workhouse, where the number of inmates was greater than in 1900, the expenditure was £10 less.

August 19th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Presentation to an Aberdeenshire Medical Man.

ON August 14th Dr. James Wilson, of Old Meldrum, Aberdeenshire, was presented with a silver fruit-bowl and a purse of 100 sovereigns. The bowl bears the following inscription: "Presented to James Wilson, Esq., M.D., along with a purse of sovereigns by more than 400 subscribers, in grateful recognition of the exceptional skill, unfailing kindness, and unswerving fidelity with which he laboured among them for over 40 years. Old Meldrum, August, 1901."

Aberdeen Medical Officer's Report for 1900.

The annual report by Professor Matthew Hay, medical

officer of health of the city of Aberdeen, for 1900 has just been issued. It deals with a wider range of subjects than usual. The population is given as 150,906. Professor Hay remarks that the death-rate (19·0 per 1000) is not high for a town of the size of Aberdeen and is indeed lower than in the majority of towns with a corresponding population. The death-rate from diphtheria, influenza, phthisis, pneumonia, &c., was in each case above the average, while the rate from measles, scarlet fever, typhoid fever, &c., was found to be on the decrease. The mortality among infants has increased materially since 1866. The total number of cases of infectious disease was 6140 and the number of deaths 196, or 3·2 per cent. of total mortality from all causes. The report deals at great length with the question of vaccination and revaccination. Professor Hay also says that the sanitary state of the town was generally good, the bakehouses had all been inspected in the course of the year and were on the whole in a satisfactory condition, and adds remarks directing attention to "the harmful and even vicious habit of cigarette smoking among young boys." In comparing Aberdeen with the other large towns of Scotland, says Professor Hay, and taking account of the alterations in the estimated populations brought about by the recent census, it will be observed that the birth-rate and marriage-rate of Aberdeen were among the highest, while the death-rate was among the lowest. During the year 762 patients were admitted into the City Hospital, the great bulk of the patients suffering from measles or scarlet fever. The mortality-rate for each disease was, with the exception of measles, gratifyingly low. In the case of measles the rate (2·6 per cent.) was above the average, but this was in large measure due to an outbreak of measles in an institution where a number of the children attacked were already suffering from other serious ailments.

August 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Central Pathological Laboratory in Connexion with the Lunatic Asylums of Ireland.

THE proposal for the foundation of a central pathological laboratory for the investigation of mental disease has recently taken a practical shape by the insertion of a permissive clause in the Lunacy Bill which has just passed. According to it the committees of any two or more district asylums may, with the consent of the county council, agree to unite "in providing and maintaining a laboratory for pathological research in connexion with insanity and nervous diseases," and the committees of those institutions may defray the expenses incurred in connexion with their union for the purpose of helping pathological research. It will be remembered that in January last a deputation representing the Royal Academy of Medicine in Ireland and the Irish division of the Medico-Physiological Association of Great Britain and Ireland waited on the Chief Secretary with reference to the project of establishing a central laboratory in Dublin. Sir Christopher Nixon—a member of the deputation—remarked that such research laboratories existed in London and in Edinburgh, while Professor Cunningham stated that a sum of £600 a year would probably be sufficient for the purpose in Ireland as it has proved to be in Scotland.

The Royal Commission on University Education in Ireland.

The Royal Commission on University Education in Ireland have arranged to commence their sittings in Dublin about the middle of September (the Senate of the Royal University at their last meeting having granted the use of their buildings to the Commission). It is stated in the public press that in order to be possessed of as much statistical information as possible regarding the present condition of education in Ireland blank forms or query sheets have been sent to the heads of colleges and schools in various parts of Ireland to be filled up with the information required under the various heads, and some of these queries are certainly peculiar. The terms of reference to the Commission are "to inquire into the present condition of the higher, general, and technical education available in Ireland outside Trinity College, Dublin, and to report as to what reforms, if any, are desirable in order to render that education adequate to the needs of the Irish people." Now one of the returns sent out to be filled up by the heads of intermediate schools, is "with reference to the number of students from above school who proceeded to Trinity College, Dublin, and the Royal University of Ireland in the year 1900." As put by one of the Irish papers, if at the very outset of its proceedings the Commission brings in Trinity College in this way how are the Commissioners to draw the line when evidence is subsequently offered? Then among many true friends of education great surprise has been expressed at another query sent out by the authority of the Commission, asking those to whom the forms are addressed to state, if students are of various denominations, the number belonging to each. To introduce sectarianism so early into the proceedings of the Commission—before any evidence is heard—has aroused among many the suspicion that a determined bias is to be given, even at the very beginning, to the evidence to be tendered at the Commission.

Ambulance Work in Belfast.

Last week the annual inspection took place of the members of the Belfast Fire Brigade, who do so well the ambulance work of the city. The inspection was made by Lieutenant-Colonel C. J. Trimble, L.R.C.P., deputy-commissioner in charge of the north-western district. Forty-five men took part in the display and it came out that Belfast was the only place in Ireland where the presence of the inspecting officer was needed. It is a pity that the example set by Belfast in regard to ambulance work is not followed by other Irish towns. There are now three ambulance wagons in connexion with the Belfast Fire Brigade and last year they were called on 1817 times.

Lunacy in Ireland.

From the fifteenth annual report on the condition and management of lunatics and lunatic asylums throughout Ireland during 1900 I gather that there was a total increase of 306 cases of lunacy, being 253 less than that for the previous year, when 559 cases were reported. The increase was mainly in district asylums—495. The increase in private asylums was 10, while in workhouses there was a decrease of 184. The general increase was 186—less than the average for the past 10 years, which was 462. The figures for 1900 show an increase in district asylums of over 41 per cent. as compared with 1881. As showing the growth of lunacy in Ireland it may be said that the number of insane under care has increased from 250 per 100,000 of the population in 1880 to 470 per 100,000 in 1890.

Overcrowding in Donegal Asylum.

At a meeting of the Committee of Management of this asylum held on August 14th Dr. E. E. Moore, the resident medical superintendent, reported that there were at present in the institution 404 males and 215 females, that is, 619 in all, while the legitimate accommodation was for 322 males and 198 females, or 520 in all; so that there are 99 patients resident in the asylum in excess of accommodation. The excess on the male side was 82 and on the female side 17, so that the numbers were slowly but steadily increasing. All the dormitories were overcrowded, and in the corridors where beds could be put up they were full. These corridors were meant to act as ventilating shafts for the asylum, but owing to patients sleeping in them they were shut at night, and the consequence was that the ventilation of the asylum was seriously interfered with and in the long run the health of the inmates would suffer. The whole question of how to provide increased accommodation is to be considered at the next meeting of the committee.

The Royal University Graduates' Association.

The executive of the Royal University Graduates' Association have issued a circular to the graduates of the Royal University pointing out that a crisis has been reached, as it will soon be settled whether university education in Ireland is to be free and untrammelled, as in all civilised countries, or to be guided and directed by small political and ecclesiastical coteries. It is pointed out that some members of the senate would destroy the Royal University and instead of protecting would sacrifice the interests of the graduates, their policy being to carve the Royal University into two petty ones which would be only local and sectional, and which could hardly be expected to attain to any repute. It is advised that the most strenuous resistance should be offered to such a retrograde policy, and that should this end in failure there is still an alternative for the graduates, that is, to send their sons and daughters to England and to Scotland where they will receive the very best education in colleges and universities of good repute, of certain stability, and free

from the narrowing influence of sectarianism. The association opposes, they say, Mr. Balfour's scheme of a university for the Roman Catholics and a university for the "great Presbyterian bodies of the North," not through hostility to any Church whatever, but on the ground that higher education could never thrive in institutions founded, not on broad educational principles, but virtually to satisfy ecclesiastical demands and to meet political exigencies. Graduates who approve of this policy are asked to become members of the association.

August 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Medico-Pharmaceutical Association at Lille and the Pasteur Institute.

THE law courts at Lille have this week had to decide a dispute of considerable interest and the decision arrived at gives a promise of future developments which are not likely to be lacking in this quality. The Pasteur Institute of Lille, presided over by Dr. Calmette and founded by the proceeds of a public subscription to which he was the most liberal contributor, commenced last year a campaign against tuberculosis in the North of France and established sanatoria as well as dispensaries in which medical advice was given gratis. The medical men of the district resented these proceedings, for they thought that the great reputation of the institute would attract patients who would thereby be lost to them, or at least that the practitioners selected from among them to attend the patients at the dispensaries would from this circumstance acquire a position in the eyes of the public which would benefit them to the detriment of the rest. The medical men of Lille said that they had contributed as ordinary citizens to the fund which established the institute and that it was intended solely for scientific work and not for the practice of medicine or pharmacy in competition with the professional men of the town. The pharmaceutical chemists joined the medical men in this protest, complaining that the public purchased sera from the Pasteur Institute and that it had given up a portion of its premises to an establishment for the manufacture of sterilised aerated waters from the preparation of which it made a profit. A combination was formed by a great many medical men and pharmaceutical chemists in Lille to restrain the Pasteur Institute from carrying on a business by receiving paying patients and by selling sera otherwise than wholesale and to pharmaceutical chemists. The result of this combination was the founding of a medico-pharmaceutical association constituted in accordance with the conditions prescribed by the French law for professional associations (*syndicats*)—namely, by delivering a declaration of foundation to the prefect of the department. The association has now been in existence for three months, which amounts to an official authorisation, for the period during which the prefect may issue an interdiction is by law limited to one month. It had collected funds, had organised conferences, and was going to bring an action at law when it received notice from the authorities that the Minister of Justice had declared the association to be illegal and that proceedings would be taken if it was not dissolved. The point raised against the association was that the law only authorised associations among persons of the same occupations or professions and that the Minister considered that medicine and pharmacy were not in this relation to one another. The association obtained an opinion from a professor in the Faculty of Law at Lille, and on being assured that its constitution was perfectly legal and that the threatened proceedings were an attempt at intimidation by the Minister, probably instigated by the eminent personages who protect the Pasteur Institute, it refused to dissolve and allowed itself to be prosecuted. Judgment has just been delivered and the medical men have to congratulate themselves on persevering in their original policy. The judges have decided in their favour by recognising the legality of the Medico-Pharmaceutical Association and by declaring that medicine and pharmacy possess the mutual relations required by law for associations of mixed composition. The association will therefore be in a position to go on with its projects and to persevere with its attack on the Pasteur Institute.

Legal Responsibility of Hospital Officials.

The Eleventh Chambre du Tribunal Correctionel has passed sentence on Mdlle. Leullier, under-nurse, Mdme. Gauthier, nurse (*surveillante*), and M. Faure, superintendent of the Hôpital Lariboisière. They were all charged with wounding and homicide by imprudence. On April 6th last Mdlle. Leullier by a lamentable mistake took from a cupboard a jar of chloride of zinc instead of a jar of honey and glycerine, and she gave six patients enemata containing a corrosive disinfectant and not the emollient which she supposed she was administering. Two patients died; the others have not yet recovered. This was the mistake which led to the prosecution. M. Faure, the superintendent, has been sentenced to 15 days' imprisonment and 300 francs (£12) fine, Mdme. Gauthier to two months' imprisonment, and the under-nurse to three months' imprisonment. They have all benefited by the system of respite which exists in France and which permits the non-fulfilment of sentences except in case of a subsequent conviction. These sentences, even with this respite, are regarded by the press as being very heavy. It is asked why sentences of imprisonment were passed. As a matter of fact, there were extenuating circumstances and the court mentioned them in pronouncing judgment. The jar of chloride of zinc was red, as was also the jar of honey and glycerine, and its label was almost illegible. Moreover, the unhappy young woman who committed the mistake was overworked. The sentence stated that her duties were excessive, since she had to work 15 and even 18 hours a day, for which she was paid 42 francs (£1 14*s.*) a month. The sentence recognised that the superintendent had a difficult task and a great deal to do, but added that it was necessary for him to give personal attention to everything, and that he would be unworthy of his position if he relied on his subordinates, only exercising his authority from a distance.

Biological Research Fund.

Legal authority has just been given for the creation of a fund for scientific research. It is divided into two sections and its object is the promotion of purely scientific work relative (1) to the discovery of new methods of treatment of the diseases which attack man, domestic animals, and cultivated plants; and (2) to the discovery, apart from the medical sciences, of the laws which govern natural phenomena (mechanics, astronomy, natural history, physics, and chemistry). The income of the fund will be derived from the following sources. 1. Grants made by the Government, by the departments, by the communes, by the colonies, and by other sections of the population. 2. Gifts and bequests. 3. Individual or collective subscriptions. 4. Grants deducted from the portion of the proceeds of the *pari-mutuel* assigned to philanthropic or charitable purposes locally; the annual amounts of these grants, which will not be less than 125,000 francs (£5000) will be fixed each year on the application of the council of management by the special commission held at the Ministry of Agriculture. 5. Interest of money invested in Government securities or deposited with the Treasury. The fund is subject to the authority of the Ministry of Public Instruction. It is managed by a council assisted by a technical commission concerned with the grants. The first section, which is the only one that interests medical men, has to do with researches having for their object the promotion of the biological sciences and especially the discovery of new methods of treating the diseases of mankind, of the domestic animals, and of cultivated plants.

Obituary

Dr. Leroy de Méricourt, who has just died at the age of 75 years, was noted as one of the reorganisers of the French naval medical service. He distinguished himself in the Crimea and was formerly Professor at the Naval Medical School of Brest. He wrote much upon tropical medicine and hygiene and founded a review which is highly esteemed at the present day, the *Archives de Médecine Navale*. He was a member of the Academy of Medicine and Chevalier of the Legion of Honour.

August 19th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

A Census of Lepers.

A COMMISSION, selected from the Marine Hospital Service, has been working under Congressional authority since 1899,

making a scientific investigation of the extent of leprosy in America. They have sent circular letters to physicians, health officers, hospital superintendents, and others, in 600 localities covering the entire country, asking for reports and information regarding leprosy patients. Eight thousand of these circulars have been sent out, but only 2000 were answered. From these 277 lepers have been located, and their names and addresses obtained; 100 of these are known to live in New Orleans, and many of them are well to do and of good family. In Minnesota about 20 cases are reported, mostly Scandinavians living in the rural districts; seven cases were reported from New York, three from Chicago, and 15 from San Francisco, 12 of these being confined in the pest-house. In North Dakota there were 15 and but two in South Dakota: in New Mexico there were at least a dozen, and Baltimore reported three; the remainder were scattered throughout the country. As the circulars have brought but few replies comparatively and suspicious districts make no returns the commissioners believe that only about one-fourth of the cases have been reported. It is evident from this investigation that notwithstanding the widespread distribution of leprous patients throughout this country, and their increase in the last decade, there is no cause for alarm, for the disease is not so fatal, or so contagious, or so easily transmitted as tuberculosis. It has also been shown that cures have often been accomplished after two years' treatment. The commission will probably recommend to Congress that national lazarettes should be established in various parts of the country, one perhaps in New Orleans, one in New Mexico, and another in Minnesota or Montana. A generous appropriation will be asked for, sufficient to cover the erection of fine isolated buildings with every appointment for the comfort and pleasure of the sufferers.

Bureau of Food Inspection in the Department of Agriculture.

Mr. B. F. Van Valkenburgh of Brooklyn, for 12 years assistant dairy commissioner and assistant commissioner of agriculture of New York, has just been appointed inspector of dairy exports for this port; the appointment was made under Mr. H. E. Alvord, chief of the dairy division of the Bureau of Animal Industry. An appropriation of $1,500,000 was made by the last Congress for the use of the Secretary of Agriculture as a fund for the establishment of a bureau in connexion with the Department of Agriculture. The duties of the inspector are to make reports to Mr. Alvord of all facts possible to obtain in connexion with the export of dairy products, as to the quality and quantity exported, and to what points, with the view of putting in force the law passed by Congress relating to the purity of dairy exports. The extent of dairy products exported from New York may be gathered from the following facts; for the year ending May 1st, 1901, there were exported 187,285 packages of butter and 559,554 packages of cheese. The agricultural laws were amended during the last winter with a view to supervise the purity of such exports by the dairy division of the Department of Agriculture.

Protection against Malaria.

There has been considerable public excitement aroused lately by the alleged existence of malaria in Central Park, New York City. This large public park, to which great numbers of children resort in the summer, comprises 15 acres of land diversified by elevations and depressions, collections of trees, and small lakes and ponds. Though medical opinion is divided as to the existence of malaria in the park, the Board of Health has taken cognisance of these statements and Dr. Herman M. Biggs, bacteriologist to the department, has prepared a circular of information and advice in regard to precautions to be taken against malarial poisoning. The following is an extract from this circular: "It has been shown by recent investigations that malarial fevers belong to that class of diseases which are transmitted by a certain kind of mosquito, namely, anopheles; this genus is not the common one of this region, but is nevertheless found in some localities. Certain simple precautions will protect a person from infection, living in a malarial district. All mosquitoes having been destroyed, a house should be screened to prevent their return, and the bed also should be protected by a net at night, this being the time that this insect does its work for the most part. A person already infected with malaria should be confined and protected from further contact with the mosquito lest he receive added infection. Quinine should be administered in full doses to destroy the malarial organisms in the blood and this remedy should be continued for a few weeks after apparent recovery. The breeding places of mosquitoes should be removed by drainage, filling up of holes and surface pools and the emptying of tubs and pails which contain stagnant water. This particular kind of mosquito breeds in surface rainpools or surface stagnant water unless there are fish; equally in pails, tubs, barrels, and tanks of standing water, though they seem to prefer natural accumulations. In pools which cannot be drained it is possible to destroy the mosquito larvæ by the use of petroleum thrown upon the surface, the introduction of minnows and other small fish which eat the larvæ, or by both these methods combined." The Board of Health seek to ascertain the location of cases of malarial fever in order to instruct people as to the danger and the best method of averting it. A case of this disease, whether actively ill or not, if produced by this kind of mosquito, is a constant menace to those in the neighbourhood unless proper precautions are taken to check its spread.

Protest against the Abolition of the Army Canteen.

The last Congress, influenced by the petitions of temperance agitators, abolished the army canteen. The result is reported by military authorities to be a large increase of intemperance, vice, and insubordination. At a recent meeting of the Association of Military Surgeons of the United States the following action was taken:

> The abolition of the army post exchange, or canteen, has resulted, and must inevitably result, in an increase of insubordination, intemperance, discontent, desertion, and disease in the army.

Therefore the association resolved:

> That this body deplores the action of Congress in abolishing the post exchange or canteen, and in the interests of discipline, morality, and sanitation recommends its re-establishment at the earliest possible date.

At a subsequent meeting of the American Medical Association this resolution was unanimously endorsed.

To Increase the Usefulness of Ambulances.

Dr. Frederick Griffith, surgeon to Bellevue Dispensary, New York, proposes so to construct and to equip ambulances attached to civil hospitals that the treatment of patients may begin at the moment that they are received into the ambulance by the ambulance surgeon. He suggests that the modern ambulance should be lined with asbestos or some non-conductor of heat in order that it may be warmer in winter and cooler in summer. Thus, patients suffering from shock could be kept warm in winter by the addition of a simple heating apparatus and patients affected with heat-stroke could be kept cool by the aid of ice-bags. If the temperature of the ambulance could thus be preserved at a proper degree both summer and winter, there would, in the opinion of this experienced surgeon, be a great saving of life amongst those patients who are suffering from shock in the cooler months and from heat in the hot months of the year and are conveyed to hospitals.

August 15th.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board in Anatomy and Physiology at the July quarterly meeting of the examiners:—

Ernest Francis Rimington Alford and James Armstrong, University College, London; Berkeley Noel Ash, St. Bartholomew's Hospital; Cecil Knight Attlee, B.A. Camb., St. Thomas's Hospital; James Landells Blackie and Frederick John Borrie, Otago University and Middlesex Hospital; John Harold Burridge, King's College, London; Arthur Herbert Bond and Harold Clapham, St. Mary's Hospital; William Bryant and Harold George Shackleford Courtney, St. George's Hospital; Thomas Charles Albert Cleverton, London Hospital; Robert Hugh Cotton, St. Thomas's Hospital; Walter Crampton, University College, Liverpool; Arthur Marcellus De Silva, London Hospital and Ceylon Medical College; William Leonard Dickson, Middlesex Hospital; Kenneth Alan Crawford Doig, Westminster Hospital; William Square Edmond, St. Bartholomew's Hospital; Evan Robert Evans, University College, Liverpool; Harry Loft Evans and Charles Roland Babington Eyre, St. Thomas's Hospital; Harry Arthur Fenton, St. Mary's Hospital; George Ernest Oswald Fenwick, Otago University and University College, London; Harold Nestor Fink, B.A. Camb., and David Hammond Fraser, B.A. Camb., Cambridge University; Walter Taylor Finlayson, St.

Mary's Hospital; William Henry France, Westminster Hospital; Edgar Herbert Good, London Hospital; George Christopher Grundy, Yorkshire College, Leeds; Percy Gully, Charing Cross Hospital; Arthur Lewis Heiser, Daniel Morgan Humby, L.D.S. Eng., Middlesex Hospital; George Wykeham Heron, Westminster Hospital; Thomas Martin Hughes, Owens College, Manchester; Cecil Dacre More Holbrook, Hugh Morley Huggins, and Algernon Meyrick Alban James, St. Bartholomew's Hospital; Arthur Hilliderband Jacob, London Hospital; Henry Hollis Jenkins, Guy's Hospital; William Holland Kaye, Owens College, Manchester; Tikiri Banda Kobbekaduwa, Ceylon Medical College and University College, London; Harold Albert Kisch and George Mackenzie Lester Lester, M.A. Oxon., St. Thomas's Hospital; John Eaton Lascelles, St. Mary's Hospital; Ernest Browning Lathbury, St. Bartholomew's Hospital; Frederick Boulton Lowe, William Norman May, Percy Frank Minett, Charles Sculthorpe Morris, L.D.S. Eng., and Maurice John Mottram, Guy's Hospital; William Cameron Macaulay, B.A. Lond., Middlesex Hospital; John Crichton Stuart McDouall, Otago University, New Zealand; Aurelius Victor Maybury, Durham University and Guy's Hospital; Philip Jauvrin Marett, Westminster Hospital; Roy Charles Merryweather, University College, London; Eenlin Storry Molyneux and Idris Naunton Morgan, London Hospital; Harold Richard Moxon, St. Thomas's Hospital; Alexander Henry Muirhead, Francis Morley Newton, and Hamish Nicol, Westminster Hospital; Gerald Nunn, Guy's Hospital; Charles William O'Brien and Alan Faraday Campbell Pollard, St. Bartholomew's Hospital; George Richard Painton, London Hospital; George Alexander Paulin, Royal College of Surgeons, Edinburgh; Christopher Trehane Pellow, St. Thomas's Hospital and Cooke's School of Anatomy and Physiology; Edward Crosby Peers, Griffith Henry Rees, Gerald Charles Frederick Robinson, Frederick Rogerson, and Richard Pugh Rowlands, Guy's Hospital; George Hooper Rains, Westminster Hospital; Cecil Edward Reynolds, University College, London; Cyril Stephen Stokes Rigby, Birmingham University; Horace Hammond Rolfe and Herbert Bailey Scott, St. Bartholomew's Hospital; Alexander Ruete and Edward Arthur Smith, University College, Liverpool; Edward John Rocke Surrage, B.A., LL.B., King's College, London; Randolph St. George Seagrove, Guy's Hospital; Kenji Takaki, St. Thomas's Hospital; Francis Thompson, Alfred Geddes Tresidder, and James Turtle, London Hospital; John Edward Litton and Alexander Turnly, B.A Camb., St. Bartholomew's Hospital; Cecil Vosper, King's College, London; Albert James Walton, Thomas John Williams, John Henry Wolfe, and Percy Charles Woollatt, London Hospital; Alfred Ernest Weaver, Birmingham University; Solomon James Weinberg, Owens College, Manchester; Arthur Denham White and Frank Edred Whitehead, St. Bartholomew's Hospital; Edward Kynaston Williams, B.A. Cantab., St. Andrew's University; and James Alexander Williams, University College, London.

Passed in Physiology only: Alexander Vigers Benson, London Hospital.

52 gentlemen were referred in both subjects, and one in anatomy only.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following gentlemen passed the Preliminary Science Examination for the Licence in Dental Surgery at the July quarterly meeting of the examiners:—

Walter Breese, Birkbeck Institute; John Piercy Brown, Holt School of Science, Birkenhead; Herbert Edgar Collett and William Ewart Derriman, Guy's Hospital; James Thomas Daly, Middlesex Hospital; Norman Sydney Deravin, Melbourne University and Charing-cross Hospital; Herbert Johnstone Fooks and Francis Gordon, Middlesex Hospital; Ernest Gibbon, Rutherford College, Newcastle-upon-Tyne; Thomas Errington Gibbs, Birkbeck Institute and Charing-cross Hospital; Leonard Anderson Glaisby, Yorkshire College, Leeds; Roland Glendining, Polytechnic Institute, Regent-street; William John Goodman, Thomas James Green and Reginald George Harrington, Guy's Hospital; Charles Talbot Vernon Greenslade, Brighton School of Science; Samuel Hallam, Yorkshire College, Leeds; Joseph Cecil Harris, Birmingham University; Samuel Isaacs, Owens College, Manchester; Matthew Jackson, Middlesex Hospital; Herbert Henning James, Charing Cross Hospital; John Jackson Law, Technical School, Blackburn; George Edward McMahon, Holt School of Science, Birkenhead; Arthur Miller, Harris Institute, Preston; Arthur Lovering Moon, Guy's Hospital; Frederick Rudolph Moser, Charing Cross Hospital; Norman McLeod Nibbs and John Arnold Oates, Birkbeck Institute; Arthur Brearley Oddie, William Charles Retallack, and John Stuart Sawer, Birmingham University; Sydney William Robinson and Robert Alexander Scott, Guy's Hospital; Walter Duckett Southern, Municipal Technical College, Derby; Bernard Maxwell Stephens, Middlesex Hospital; Francis Edgar Sprawson and Francis Raymond Wilson, Birkbeck Institute; and Henry Harrison Tomlinson, Holt School of Science, Birkenhead.

UNIVERSITY OF LONDON.—At the Preliminary Scientific Examination held in July the following candidates were successful:—

ENTIRE EXAMINATION.

First Division.—Frank Cyril Harvie Bennett, St. Mary's Hospital; James Francis Blackett, Merchant Venturers' Technical College, Bristol, and Bath Technical School; John Smeed Bookless, Guy's Hospital; Richard Charles Bristow, St. Olave's Grammar School; Herbert Orpe Brookhouse, Guy's Hospital; Cuthbert Garrard Browne, Westminster Hospital and University Tutorial College; George Cockcroft, Guy's Hospital; Leonard Colebrook, London Hospital; Emily Susan Cooke, London School of Medicine for Women; Josephine Coupland, London School of Medicine and Royal Free Hospital; Wilfrid Arthur Edwin Dobbin, University College, Cardiff; Reginald Robert Elworthy, Westminster Hospital and University Tutorial College; Hugh Roker Evans, University College; Paul Leon Guiseppi, St. Bartholomew's Hospital; John Norman Glaister, University College; Bertram Thomas Johnson Glover, University College, Liverpool; Thomas Mellor Hardy, University College, Sheffield; Robert Francis Hebbert, St. Thomas's Hospital; Herbert George Murdoch Henry, University College, Sheffield; Montague Leonard Hine, University College; Henry Hudson, Owens College; Thomas Edward Jones, University College, Liverpool; Sidney Herbert James Kilroe, Owens College; Ethel May Magill, London School of Medicine for Women; Albert John May, Epsom College; Evelyn Henry Bardens Oram, St. George's Hospital and University Tutorial College; John Paulley, Epsom College; Eleanor Whitworth Perkins, London School of Medicine for Women; Ferdinand Charles Hungerford Powell, King's College; Alan Randle, University College; James Ernest Helme Roberts, King Edward's School and the University, Birmingham; Arthur Carlile Sturdy, St. Paul's School; Robert Evans Thomas, University College, Bristol; Henry François Vandermin, Guy's Hospital; Helen Voickman, London School of Medicine and Royal Free Hospital; John Alexander Watt, University College; Sibyl Ibbetson Welsh, London School of Medicine and Royal Free Hospital; John Black Ferguson Wilson, Yorkshire College; Andrew John Metford Wright, University College, Bristol; Courtenay Yorke, University College, Liverpool; and Warrington York, University College, Liverpool.

Second Division.—Augusta Dorcas Shelton Agar, University College, Bristol; Herbert Ainscow, Owens College; Edgar Alban, Guy's Hospital; Alexander Charles Anderson, Dulwich College; Ewald Balthasar, University College and Alwyne Institute; James Leslie Barford, Epsom College; Bertram Henry Barton, St. Bartholomew's Hospital; Arthur William Berry, Guy's Hospital; Raymond Glendower Bingham, University College, Sheffield, and University Tutorial College; Walter Rowley Bristow, St. Thomas's Hospital; Alexander Carruthers Bryson, London Hospital; Leonard Buckell Cane, King's College, Cambridge; Horace Gooch, London Hospital; William Richard Griffith, University College, Liverpool; John Ernest Hudson, Guy's Hospital; Annie Wainwright Hyatt, University College, Bristol; Charles Bleunkinsop Jones, London Hospital; Edith Anne Jones, University College, Cardiff, and Alwyne Institute; Thomas Bramley Layton, Guy's Hospital; Harold Norman Little, Epsom College; Patrick Francis McEvedy, Guy's Hospital and private study; Bertrand George Eldon Machon, University College, Bristol; Ivon Clarkson Maclean, St. Thomas's Hospital; Sylvia May Moore, Westfield College; Emily Helen Morris, London School of Medicine and Alwyne Institute; Samuel Shuttleworth Rendall, St. Bartholomew's Hospital; Harold Brooke Scargill, Yorkshire College; Stanley Henry Scott, Epsom College; Thomas Gordon Starkey Smith, University College, Liverpool; Grace Maud Stagg, London School of Medicine for Women; George Wray Sudlow, Owens College; Stanley Upton, St. Bartholomew's Hospital; and Harold Beckwith Whitehouse, St. Thomas's Hospital.

CHEMISTRY AND EXPERIMENTAL PHYSICS.

Arnold Alcock, Owens College; Leonard Tilsley Baker, Dulwich College; Ella Mabel Barker, London School of Medicine for Women; Ella Beales,* Westfield College and Alwyne Institute; Harry Blakeway, King Edward's Grammar School, Stourbridge; Frank Treadwell Boucher, Merchant Venturers' Technical College, Bristol; John Philip Buckley, Owens College; Henry Joseph Cates, Ashford Grammar School and University Tutorial College and private study; Samuel Earle Cathcart,* Middlesex Hospital; John Basil Close, Yorkshire College; Ethel Constance Cousins,* University Museum, Oxford, and Millard Laboratory; Samuel Wilfrid Daw, Guy's Hospital; Maurice Rowland Dobson,* Yorkshire College and Alwyne Institute; George John Eady,* St. Bartholomew's Hospital; Kenneth Edward Eckenstein,* University College, Liverpool; William Vincent Field, Brighton Municipal School of Science and Technique; Frederick Pearson Fisher, King Edward's Grammar School, Stourbridge; Margaret Fisher, London School of Medicine for Women; Arthur Leslie Foster, Guy's Hospital; Tom Scott Foster, Portsmouth Technical Institute and private study; Sidney Frank Fouracre, St. Thomas's Hospital and private study; Gertrude Gazdar, London School of Medicine and Royal Free Hospital; Elisabeth Mary Gibbon,* Alwyne Institute; Carleton Wyndham Gittens,* University Tutorial College; Edith Mary Guest,* Oxford University; Ethel Margaret Eades Hall, Alwyne Institute; Susie Eleanor Hill,* Westfield College; Herbert Vawser Humphry,* University College and private tuition; Arthur Ernest Iles,* University College, Bristol, and University Tutorial College; William Andrew Morton Jack, Dulwich College; Harold Emlyn Jones, London Hospital; Edward Cronin Lowe,* Guy's Hospital; Samuel Edward McClatchey,* Owens College and private study; Henry Alvin Mahoney, Owens College; Claude Herbert Marshall, Dulwich College; William Arnold Milner,* Alwyne Institute; Charles Max Page, Westminster School; Robert Elliot Pitts,* Middlesex Hospital and Alwyne Institute; Arthur Haigh Pollard, Epsom College and London Hospital; Hugh Ridley Prentice,* St. Bartholomew's Hospital and private tutor; Arthur Herbert Rich, University Tutorial College; Evan David Richards,* University College, Cardiff; Cecil Frederick Robertson, Mercer's School; Arthur Frederick Sanderson, St. Thomas's Hospital; Herbert Chavasse Squires,* Oxford University; Clare Oswald Stallybrass,* University College, Liverpool, and private study; Reginald Woolsey Stocks,* Dulwich College and St. Thomas's Hospital; Arthur Arbuthnot Straton, Blundell's School, Tiverton; Ida Clare Tengely,* London School of Medicine and Royal Free Hospital; St. John Alexander M. Tolhurst, Guy's Hospital; Sydney Arthur Tucker, St. Bartholomew's Hospital; William Bunting Wamsley, Goldsmiths' Institute; Sidney Bernard Watson, London Hospital; Charles McMoran Wilson,* Owens College; and Arthur Zorab, Guy's Hospital.

BIOLOGY.

Godfrey Frederick Ely Allison, Owens College; Charles Ernest Anderson, King's College; James Appleyard, University College; Charles Anthony Basker, Guy's Hospital; Lionel Hetborn Booth,* Epsom and University Tutorial Colleges; John Albert Bullbrook, Guy's Hospital; Angel Camacho, Charing-cross Hospital; Howard James Barrell Cane, University Tutorial College and private study; Robert Colgate, University College; Bella Dawson, Westfield College; Allan Baines Fearnley, private study and University Tutorial College; Archibald Thomas William Forrester, St.

Bartholomew's Hospital; Henry Mellor Fort, Owens College; Norman Kessen Foster, University College; Charles Thomas Hawkins, University College, Cardiff; Reginald Beaumont Heygate, Epsom College; F. Garfield Hodder Williams, St. Bartholomew's Hospital; George Montague Williams Hodges,* University College; Walter Leopold Holyoak,* Wyggeston School; Charles Reginald Hoskyn, St. Bartholomew's Hospital; Howell Tylford Howells, University College, Cardiff; Francis Robert Howse,* St. Paul's School and St. Mary's Hospital; Edward Henry Hugo, Epsom College; Evan John Goronwy Jones, University College, Cardiff; Ralph De Veil King, St. Mary's Hospital; Alfred John Lee, University College; Ethel Mary Lomas, Owens College; Emily Mary Spencer Mecredy, Yorkshire College; John Griffiths Morgan, London Hospital; Clive Newcomb,* Merchant Taylors' School; Owen Brynog Parry, Birkbeck Institute and University Tutorial College; Arthur Hardwicke Platt, Epsom College; Edward John Price, University College, Aberystwith; Marie Simpson, University College, Nottingham; William Fretson Skinner, University College, Sheffield; George Francis Rawdon Smith, University College, Liverpool; Nora Frances Smith and Eliza Macdonald Smith, London School of Medicine for Women; Claude Edward Tangye, B.A.,* Birmingham University; Thomas Williams Wade, University College, Cardiff; Norman Hamilton Walker, St. Bartholomew's Hospital; and Joseph William James Willcox, University College Bristol.

* These candidates have already passed a part of the examination.

N.B.—The names of candidates who have obtained honours do not appear in this list.

The foregoing list, published for the convenience of candidates, is provisional only, and is not final until the reports of the examiners shall have been confirmed by the Senate.

THE PRINCE OF WALES'S HOSPITAL FUND.—By the will of Sir Henry Page Turner-Barron a sum of £3000 has been left to this fund free of legacy duty.

PLAGUE IN SAN FRANCISCO.—The August number of the *Maryland Medical Journal* states that a fresh outbreak of bubonic plague has occurred in San Francisco. A Chinaman, reported to have just arrived in the city from one of the islands on the Sacramento river, died on July 6th. Three Japanese prostitutes also died from the plague in a house in Chinatown. These patients were sick before the arrival of the Chinaman. The necropsy confirmed the diagnosis in three of the four cases. Before the present outbreak, no cases had been reported since April. The situation is now being treated in a frank and decided manner, so that no serious danger is apprehended.

ROYAL CORNWALL INFIRMARY, TRURO.—The annual meeting of the supporters of this institution was held at Truro on August 12th, under the presidency of Colonel Tremayne. The one hundred and second annual report, which was presented, stated that during 1900 there were 394 in-patients admitted, an increase of one on the previous year; the average daily number of in-patients was 29, and the average number of days in hospital was 27. 922 out-patients were treated, against 790 in the preceding 12 months. The financial statement showed that the total income amounted to £2575, and that a favourable balance of £338 remained.

CHARITABLE BEQUESTS AND DONATIONS.—The committee of management of the Royal Free Hospital have received from Mr. Peregrine Purvis the munificent donation of £1000. By the will of Mr. Alfred Joseph Dettmar a sum of money is to be set apart by the executor to produce an income of £1500 a year. For 15 years £1000 of this sum is to be distributed among the Hospital for Paralysed and Epileptic (Albany Memorial), Queen-square, Bloomsbury; the Hospital for Epilepsy and Paralysis and other Diseases of the Nervous System, Regent's Park; and St. Mary's Hospital, Paddington. At the expiration of 15 years, or in certain events earlier, the capital of the fund producing the £1500 annuity is to be distributed among the three hospitals.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, AUGUST 15TH.

Cases of Small-pox in London.

MR. CREMER asked the President of the Local Government Board whether he could state how many cases of small-pox were treated at the metropolitan small-pox hospitals in each of the years 1898, 1899, and 1900; how many of those cases bore vaccination marks and how many were unvaccinated; how many of the fatal cases in each year were vaccinated persons and how many were unvaccinated; and how many cases were certified by medical men to be cases of small-pox and subsequently turned out to be not so suffering; and what steps he proposed to take to prevent such erroneous certification in the future.—MR. LONG replied: I am informed that the number of cases of small-pox treated at the hospitals of the Metropolitan Asylums Board in the years 1898, 1899, and 1900 was 5, 18, and 66 respectively. The number of cases which bore evidence of vaccination in each of these years was 5, 15, and 49. There were no deaths in 1898; in 1899 there were three deaths, all of them vaccinated cases, and in 1900 there were also three deaths, only one of which was a case bearing evidence of vaccination. The number of persons wrongly certified by medical men to be suffering from small-pox in these years was 31, 18, and 30 respectively. I have no authority to take any steps as suggested in the second paragraph of the question.

The Adulteration of Milk.

MR. STRACHEY asked the President of the Board of Agriculture whether he intended to adopt any of the recommendations of the departmental committee besides those referring to a milk standard, and especially whether he intended to take any steps for ensuring that the addition of separated milk to whole milk could be detected.—MR HANBURY replied: We are preparing circular letters to the local authorities calling their attention to the recommendations of the committee with regard to the adulteration of cream with gelatin or other substances, and to the administration of the Food and Drugs Acts generally, with the object of protecting the vendor whose milk is proved to be genuine though below the regulation limit, and of preventing milk being reduced to that limit if naturally above it. The suggestion of the hon. member for earmarking separated milk by the addition of some innocuous substance is one which could not be carried into effect without further legislation. We also propose to direct the attention of local authorities to the desirability of a uniform procedure as to sampling and analysing the milk taken for examination, and to indicate what such procedure should be. The labeling of condensed milk would require further legislation. We have already made arrangements by which the vessels used in the testing of milk can be officially standardised at the National Physical Laboratory.

FRIDAY, AUGUST 16TH.

The Prevention of Enteric Fever.

SIR MICHAEL FOSTER asked the Secretary of State for War whether his attention had been called to certain proposals contained in a scientific publication for the prevention by means of a Royal Water Corps of enteric and other water-borne diseases in war; and whether, in view of the recent heavy losses by these diseases in South Africa, he would give these proposals his serious consideration in order to ascertain whether they offered any practical suggestions for preventing such disasters in future.—Lord STANLEY replied: The attention of the Secretary of State for War has been called to the pamphlet in question. The proposals have been carefully considered but are found to be entirely impracticable for active service.

The Nursing Question in Ireland.

MR. O'DOHERTY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he would consider the advisability of including the Londonderry City and County Infirmary in the list of those prescribed by the Local Government Board Order relating to trained nurses in workhouse infirmaries in Ireland, in order to provide that nurses trained in the said infirmary might be eligible for appointments in workhouse infirmaries in the surrounding districts; and, having regard to the degrees held by the staff of the said infirmary, which consisted of five visiting physicians and surgeons and one resident doctor, and to the ensuring thereby of efficiency of training for nurses, would he place the nurses trained in this infirmary on terms of equality with nurses trained in Belfast and Dublin?—Mr. GEORGE WYNDHAM replied: Owing to the relatively small number of patients that can be treated at this hospital the Local Government Board has not seen its way to recognise the training there as sufficient to entitle its nurses to recoupment under the provisions of the 58th section of the Act of 1898. I will, however, give the whole subject my personal consideration during the recess

The Conduct of Executions.

DR. THOMPSON asked the Home Secretary if he was aware that in executions as carried out in this country death was seldom instantaneous, that in the majority of cases the vertebra was neither dislocated nor fractured, and that in many cases the pulse beat at the wrist after the fall of the drop for five or six minutes; and whether he would order a careful inquiry to be made into the present method of conducting executions in Great Britain and Ireland with the view of steps being taken to prevent possibility of the convict being conscious of suffering.—Mr. RITCHIE said: The exact cause of death is carefully investigated in each case and the evidence is entirely opposed to what is suggested in the question. I have no reason for supposing that any further inquiry is needed.

Tuberculosis and Cancer.

MR. JASPER MORE asked the President of the Local Government Board whether it would be possible for the promised Royal Commission on Tuberculosis to inquire whether cancer was communicable from animals to man.—Mr. WALTER LONG replied that the appointment of a Royal Commission with regard to tuberculosis was still under the consideration of the Government. Assuming, however, that such a commission was appointed, he did not think that it would be practicable that the matters referred to it should include investigation on the subject mentioned by his hon. friend.

SATURDAY, AUGUST 17TH.

Medical Appointments in Dublin.

MR. CLANCY asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been drawn to the fact that, though the North Dublin Board of Guardians agreed to grant an increase of salary to the two medical officers of the North Dublin dispensary district, the Local Government Board refused to sanction such increase; and whether he would state the reasons why the Board so refused, while sanctioning similar increases to the medical officers of the South Dublin Union.—Mr. WYNDHAM replied that the Board did not see its way to approve the proposed increases of salary as the salaries already paid to these gentlemen were larger than the average salaries paid in other districts throughout Ireland and also £20 a year in excess of the salaries paid to medical officers in the South Dublin City districts. The effect of the increases since sanctioned in the salaries of the medical officers of the South Dublin Union had simply been to bring up the salaries of those officers to the same level as the salaries paid to their colleagues in the North Dublin Union.

The Close of the Session.

This was the last sitting of the Session. Commissioners representing His Majesty the King attended in the House of Lords, and in presence of the Speaker and Members of the House of Commons they read the Royal Speech proroguing Parliament.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BEALE, H. R., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Resident Medical Officer to the General Infirmary at Leeds.

DAVIES, W. N., M.D. R.U.I., has been appointed Certifying Surgeon under the Factory Acts, for the Llantrisant and Llantwit Fardre Rural District.

EVANS, D. E., M.B., B.S. Lond., has been appointed Certifying Surgeon under the Factory Acts for the Pontypridd Urban District.

GRUNER, O., M.R.C.S., L.R.C.P. Lond., has been appointed one of the House Physicians to the General Infirmary at Leeds.

HOWARD, VINCENT, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator for the Leckhampstead District of the Buckingham Union, and Medical Officer to the Union Workhouse, vice G. H. De'Ath, deceased.

HUNTER, WILLIAM, M.B., C.M. Aberd., has been appointed Assistant Director of the Pathological Institute, London Hospital.

JEFFREY, J. R., M.B., M.S. Glasg., has been appointed Certifying Surgeon under the Factory Acts for the West Linton District of the County of Peebles.

LEIGHTON, P., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Chirnside District of the County of Berwick.

MCDONNELL, L. G. A., M.B. Dubl., has been appointed Medical Officer of Health at Herberton, Queensland.

MICHELL, R. T., M.B. Edin., has been appointed Government Medical Officer at Wea Waa, N.S.W.

POTTS, E. THURLOW, M.B., Ch.B. Edin., has been appointed Resident Medical Officer for Sick Children, Newcastle-on-Tyne.

RAW, NATHAN, M.D. Durh., F.R.S.E., D.P.H., has been appointed Visiting Medical Superintendent to the West Derby Union Infirmary, Mill-road, Liverpool.

SKINNER, G. H., M.R.C.S., L.R.C.P. Lond., has been appointed Justice of the Peace for the district of Macquarie, Tasmania.

SMITH, C. LAWSON, M.B., Ch.B. Aberd., has been appointed Senior Resident Medical Officer to the Tottenham Hospital.

STOCKWELL, JAMES, L.R.C.P. & S. Edin., has been appointed Medical Superintendent of the Dunwich Benevolent Asylum, Medical Officer for the care, inspection, and supervision of lepers detained in the Lazaret at Stradbroke Island, and Superintendent of the Institute for Inebriates at Dunwich Benevolent Asylum, Queensland.

SYME, A. E., L.R.C.P. Edin., has been appointed Medical Officer of Health for the Shire of Lilydale, Victoria.

TOFT, W. H. M.B. Edin., has been appointed Deputy Registrar of Births, &c., at Campbellton, New South Wales.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ANCOATS HOSPITAL, Manchester.—Resident House Surgeon. Salary £100 per annum, with board, residence, &c.

BELGRAVE HOSPITAL FOR CHILDREN, 77 and 79, Gloucester-street, S.W.—House Surgeon for six months. Gratuity £5, and board and lodging.

BIRMINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Medical Officer. Salary £100 per annum, with apartments, rations, coals, gas, laundry, and attendance.

BRADFORD ROYAL INFIRMARY.—Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence. Also Junior House Surgeon, unmarried. Salary £50 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon. Salary £75 per annum, with board, residence, &c.

CHESHIRE COUNTY ASYLUM, Parkside, Macclesfield.—Senior Assistant Medical Officer, unmarried. Salary £175, rising to £200 per annum, with board, apartments, washing, and attendance.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer, unmarried. Salary £150, increasing to £200, with apartments, board, washing, and attendance.

COUNTY BOROUGH AND PORT OF SOUTHAMPTON.—Medical Officer of Health, Port Medical Officer, and Medical Superintendent of Infectious Diseases Hospitals. Salary (combined offices), £500 per annum.

CUMBERLAND INFIRMARY, Carlisle.—Resident Medical Officer. Salary at rate of £80 for first six months, and £100 second six months per annum respectively, with board, lodging, and washing.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

DISTRICT HOSPITAL, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

EAST LONDON HOSPITAL FOR CHILDREN, Shadwell, E.—House Surgeon for six months. Honorarium £25, with board, residence, &c. Also Medical Officer for six months, renewable. Salary at rate of £100 per annum, with luncheon.

EAST RIDING OF YORKSHIRE.—Medical Officer of Health. Salary £400 per annum, rising to £500, with certain allowances.

ESSEX AND COLCHESTER HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

ESSEX COUNTY ASYLUM, Brentwood.—Junior Assistant Medical Officer. Salary £140 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Assistant Medical Officer, unmarried. Salary £175, with board, lodging, attendance, and laundry.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing. Also Junior House Physician for six months. Salary at rate of £30 per annum, with board, lodging, and washing. Also non-resident Assistant House Surgeon. Salary at rate of £30 per annum, with luncheon and dinner. Also Junior House Surgeon for six months. Salary at rate of £30 per annum, with board, lodging, and washing.

KASR-EL-AINY HOSPITAL AND SCHOOL OF MEDICINE, Cairo, Egypt.—Physician to the Hospital and Professor of Clinical Medicine at the School. Salary £E320 per annum and private practice allowed.

LEICESTER INFIRMARY.—Honorary Assistant Physician and Honorary Assistant Surgeon.

LEICESTER ISOLATION HOSPITAL.—Resident Medical Officer. Salary £120, with board and washing.

LINCOLN COUNTY HOSPITAL.—Assistant House Surgeon for six months, eligible for re-election. Honorarium £25, with board, residence, and washing.

LIVERPOOL STANLEY HOSPITAL.—Third House Surgeon. Salary £70, with board residence.

MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN.—Honorary Pathologist.

METROPOLITAN ASYLUMS BOARD.—Assistant Medical Officer, unmarried, at the Fever and Small-pox Hospitals. Salary £160 per annum, rising to £200, with board, lodging, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician. Salary at rate of £40 per annum. Also House Surgeon. Salary at rate of £40 per annum. Also Assistant House Physician. Salary at rate of £20 per annum. Also Assistant House Surgeon. Salary at rate of £20 per annum. Each for six months.

NORTHAMPTON GENERAL INFIRMARY.—House Physician (unmarried). Salary £100 per annum, with apartments, board, attendance, and washing.

NOTTS COUNTY ASYLUM.—Temporary Assistant Medical Officer. Four guineas per week, with board, lodging, attendance, and washing.

OWENS COLLEGE, Manchester.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

QUEEN CHARLOTTE'S LYING-IN-HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.—House Surgeon. Salary £50, with board, &c. Also Assistant in the Dispensary (non-resident). Salary £80.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

SCARBOROUGH, BOROUGH OF.—Medical Officer of Health. Salary £325 per annum, rising to £375 per annum.

SHEFFIELD ROYAL HOSPITAL.—Junior Assistant House Surgeon, unmarried. Salary £50 per annum, with board, washing, and lodging.

SHEFFIELD UNION WORKHOUSE INFIRMARY.—Junior Assistant Medical Officer (unmarried). Salary £75 per annum, with apartments, board, and washing.

SUFFOLK GENERAL HOSPITAL, Bury St. Edmunds.—House Surgeon. Salary £100, with board, lodging, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians for six months. Board and lodging provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

THE Chief Inspector of Factories, Factory Department, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory Acts at Harlow, Essex.

Births, Marriages, and Deaths.

BIRTHS.

BANKS.—On August 11th, at West Hill Tower, Ryde, I.W., the wife of Alfred Banks, F.R.C.S., L.R.C.P. Lond., of a son.

GREEN.—On August 17th, at West-hill, Sydenham, S.E., the wife of H. Melvill Green, M.D. Edin., of a daughter.

HAVELOCK.—On August 15th, at Sunnyside, Montrose, N.B., the wife of John G. Havelock, M.D. Edin., of a daughter.

ISAACS.—On August 18th, at Sinclair-road, Kensington, the wife of E. Percival Isaacs, L.R.C.P. Lond., M.R.C.S., of a son.

MILLER.—On August 12th, at St. Mary's Gate, Grimsby, Janet, the wife of Alex. Miller, M.B., B.C. Camb., of a daughter.

SCOTT.—On August 13th, at Hurstpierpoint, Sussex, the wife of William John Scott, L.R.C.S., L.K.Q.C.P. Irel., of a son.

MARRIAGE.

ROCYN-JONES—JONES.—On 13th inst. at Trinity, Abertillery, by the Rev. J. E. Rhys, uncle of the bride, assisted by the Rev. H. H. Hughes, B.A., B.D., of Anglesea (cousin of the bride), D. L. Jenkins and D. Beynon Jones, Abertillery, D. T. Rocyn-Jones, M.B., C.M. Edin., eldest son of Mr. D. Rocyn-Jones, Rhymney, to Alla, elder daughter of Councillor S. N. Jones, J.P., Abertillery.

DEATHS.

BELL.—On August 16th, at Cavendish-road, St. John's Wood, Alfred James Bell, M.R.C.S., L.S.A., aged 56 years.

SWETE.—On August 9th, at Castle-hill, Fishguard, Pembrokeshire, Horace Lawton Swete, J.P., L.R.C.P. Lond.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HOW DISEASE IS SPREAD.

AT a meeting of the Rowley Regis, Staffordshire, District Council, held on August 21st, the medical officer of health is reported to have stated that he found a boy suffering from small-pox in a house where ice-cream was manufactured and sold. At the time of his visit to the house the parents of the child were selling the ice-cream in the streets. He also stated that there were several cases of small-pox in an adjoining parish. The ice-cream was of course destroyed. Presuming the facts to be substantially correct as reported, we cannot ascribe sufficient blame to the parents. They may have acted in ignorance, but such ignorance is criminal. The case should serve as a reminder to all medical men that the danger of infection ought to be impressed and reimpressed on the poor of the community. With regard to small-pox the public should have little to fear, but they do not periodically submit themselves to revaccination, and the Government have failed to keep their promise to effect legal reform in this direction. It may not be always amongst the poorest that concealment of infectious diseases, intentional or otherwise, is to be feared, nor is it only in the lowest stratum of society that dense ignorance is found. A case presenting somewhat similar features is reported from Glasgow, where a man was convicted at the Sheriff's Court on August 19th for having used, without giving due notice, a hackney carriage from a public stance for the conveyance of his child, who was suffering from scarlet fever. He pleaded in defence mental perturbation and ignorance of the provisions of the Public Health Act, and was properly fined. His offence against the public was not on the face of it so grave as that of the ice-cream seller, but the opportunities of spreading disease in the way that he adopted are very frequent and must be guarded against.

POST-HERPETIC NEURALGIA.

To the Editors of THE LANCET.

SIRS,—I should feel indebted to any readers of THE LANCET for some suggestions as to treatment in the following case. A patient of mine, a male, aged 62 years, subject to gout, suffered from an acute attack of herpes zoster in August, 1900, which ran its usual course, leaving, however, a persistent neuralgia along the course of two intercostal nerves and being most marked over the point of exit from the spine and over the point in front where the branch comes through to supply the skin. The heart is normal and the urine contains a mere trace of albumin. Most remedies have been tried, amongst which are included: (*a*) externally—cocaine, iodine, blisters, morphia injected into the tender spots, electricity; (*b*) internally—alkalies, colchicum, arsenic, iodide of potassium, bromides, piperidine, quinine, phenacetin and antipyrin, but the pain still continues. He has had the advice of specialists in London, Berlin, and Wiesbaden.

I am, Sirs, yours faithfully,

August 20th, 1901. KENSINGTON.

"THE RE-MAKING OF MATTRESSES."

IN reference to this subject we have received a communication from Messrs. Paté, Burke, and Co., the proprietors of Petanelle, informing us that they make mattresses stuffed with Petanelle wool. This is a fibrous material derived from peat, and though we have had no experience of it as regards a filling for mattresses yet from our examination (THE LANCET, Oct. 9th, 1897, p. 922) of specimens submitted to us when known as "Beraudine peat wool," we should think it well fitted for the purpose indicated.

HERBAL MEDICINE A CENTURY AGO.

To the Editors of THE LANCET.

SIRS,—I chanced to come across a curious and, to the medical man, interesting old book a short time ago; it is called "The Family Herbal" and gives all the common English plants and flowers which can be used medicinally, with directions for preparation. The author, Sir John Hill, M.D., F.R.A. of Sciences of Bourdeaux, states his opinion in the preface that if medical men used herbs more and chemicals less there would not be so much suffering in the world. He gives full directions for the gathering and preserving of herbs, with the methods of preparing them and directions for their use. The book is intended for the use of families and those who are "charitable to the poor in the relief of their disorders." He, the author, would have "every lady who has the spirit of this true benevolence keep a kind of druggist shop of her own supplied from the neighbouring fields and her own garden." I have selected a few of the commoner wild and garden plants, with the preparation to be used and the diseases which they are supposed to cure. Most, we are told, "work by urine," and, in fact, nine out of 10 would appear to have a diuretic action. A decoction of ground-ivy leaves cures "foul and bloody urine." An infusion of half-ripe garden beans is a good carminative. The juice of beet-root cures headache. The root of bindweed boiled in ale is a powerful purge The oil of the box-tree, procured by distillation, dropped into the hollow of a carious tooth, relieves toothache—so-called "leprosies," the author states, have been cured by this oil taken internally Barrenwort is given to hysterical women with great success. An infusion made from the flowers and tops of Canterbury bells is an excellent gargle for sore-throats. Furze-bush seeds are safe astringents. The juice of the great celandine is good for sore eyes. Chickweed cut up fine and boiled in lard makes a good cooling ointment. Cowslip tea is "much used against apoplexies." Crowfoot leaves laid on the skin raise blisters as quickly and surely as cantharides. The juice expressed from daffodil roots is a prompt emetic; used externally, it takes down swellings rapidly. Dock root beaten up with lard is a sure cure for the itch. The juice of eyebright is famous for improving dimness of sight. Foxglove plant boiled in ale is good for rheumatism. There is an extraordinary statement that "it works violently upwards and downwards," though whether in connexion with rheumatism the author does not say. A decoction of ivy leaves destroys vermin in children's heads; an infusion made from the berries is good for rheumatic pains. A decoction of haresfoot "stops the overflowing of the menses ..... and is good against bloody fluxes and purgings of all kinds." A decoction of larkspur leaves arrests hæmorrhage. The juice of lettuces, or the stalk eaten whole, produces sleep, the author wisely stating that it should be given by the housewife in preference to opium or its preparations. An infusion of marigold flowers is a good diaphoretic in fevers. The leaves of mistletoe dried and powdered are to be used in epilepsy. The juice of primrose roots relieves headaches. Horse-radish is good for rheumatism. The fresh tops of wood sage "promote the menses powerfully." Thistle root is a bitter tonic and improves the appetite. A tea made of the fresh tops of thyme is excellent in asthma. A syrup made from violets is a good aperient for children. 500 plants are given altogether, but I have only chosen those which are well known at the present time. The book is 100 years old and probably many plants well known at that time would be less familiar now and consequently less interesting to the medical reader than those I have named.

I am, Sirs, yours faithfully,

HENRY W. SPAIGHT, L.R.C.P., L.R.C.S. Irel.

August 17th, 1901.

"GRUESOME SUPERSTITIONS."

To the Editors of THE LANCET.

SIRS,—Your correspondent, "Corpus Vile," in THE LANCET of August 17th, p. 502, will find an article on the curious phenomenon known as "bleeding bread," or the "bleeding Host," in *Nature* of Oct. 12th, 1893 (vol. xlviii., page 578), with several references to the literature on the subject.

I am, Sirs, yours faithfully,

R. A. GREGORY, Assistant Editor of *Nature*.

Westover-road, Wandsworth Common, S.W., August 18th, 1901.

FRACTURE OF THE FIRST RIB.

IT is generally recognised that fracture of the first rib is very difficult to diagnose. It is so hidden by the clavicle that it is saved from many direct blows, but the clavicle also renders it difficult to determine if any fracture of the first rib is present. It is almost impossible to palpate it, but auscultation appears to offer assistance in diagnosing fracture of this rib, as it not infrequently does in cases of fracture of other ribs. Dr. Eichholz has furnished us with the notes of a case of a man who fell downstairs, striking the point of his shoulder. He had pain over the upper end of the sternum aggravated by breathing. No crepitus could be felt, but on auscultation crepitus could be heard near the sternal end of the clavicle. In another case also the stethoscope rendered easy the diagnosis of fracture of a second rib. In both instances the subsequent formation of a callus confirmed the diagnosis.

THE EQUIPMENT OF A CIVIL SURGEON AT THE WAR.

To the Editors of THE LANCET.

SIRS,—I shall be obliged if you or any of your correspondents can give me any hints as to the necessary outfit for a "civil medical practitioner" in South Africa. Is any uniform necessary?

I am, Sirs, yours faithfully,

August 20th, 1901. CIVIL SURGEON.

"GRAND OPENING FOR A MEDICAL MAN."

WILL our correspondent, "C. W. Harrington, L.R.C.P.," in THE LANCET of August 17th, p. 503, be cool enough to forward his address?

"WHITE PRECIPITATE IN INFANTILE DIARRHŒA."

To the Editors of THE LANCET.

SIRS,—I quite agree with Dr. E. T. Ensor's letter in THE LANCET of August 10th, p. 430, *re* infantile diarrhœa; the liquor hydrargyri perchloridi and aromatic spirit of ammonia do form an irritant poison but at the same time I have found the liquor hydrargyri perchloridi very beneficial in the treatment of summer diarrhœa. It was strongly advised in your columns in the hot summer of 1893.

I am, Sirs, yours faithfully,

August 21st, 1901. BRIDGE.

TREATMENT OF CONSUMPTION IN CAMBERWELL INFIRMARY.

WE understand that the Camberwell Board of Guardians have made provision for three wards, containing a total of 72 beds, in the new Camberwell Infirmary now in course of erection for patients suffering from consumption.

House Surgeon.—Lectures on Medicine to Nurses, by Herbert E. Cuff, M.D. Lond., Churchill, 3s. 6d.; Aseptic Principles for Nurses, by C. E. Richmond, F.R.C.S., Churchill, 1s.; Medical Nursing, by James Anderson, M.D., London, H. K. Lewis.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.).

SATURDAY (31st).—Royal Free (9 A.M. and 2 P.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (26th).—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: Surface Anatomy of the Thorax.

THURSDAY (29th).—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. E. A. Saunders: Neurasthenia and its Treatment.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

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Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 22nd, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 16	30·08	WSW	0·01	122	75	56	57	61	Cloudy
,, 17	30·19	WSW	...	115	73	57	58	64	Fine
,, 18	30·24	S.	...	119	85	59	61	67	Fine
,, 19	30·27	E.	...	117	82	61	63	70	Fine
,, 20	30·39	N.E.	...	117	75	56	57	63	Fine
,, 21	30·39	E.	...	116	77	58	59	65	Cloudy
,, 22	30·34	E.	...	110	75	56	58	63	Hazy

During the week marked copies of the following newspapers have been received:—*Weekly South African News, Mining Journal, Majeking Mail, Windsor and Eton Express, Hertfordshire Mercury, Reading Mercury, City Press, Leeds Mercury, Liverpoo Daily Post, Daily News, Halifax Evening Courier, &c.*

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